

**Index
to
NASA Tech Briefs
1974**



February 1975

National Aeronautics and Space Administration

This document is available from the National Technical Information Service (NTIS), Springfield, Virginia 22161, for \$3.00. For copies mailed to addresses outside the United States, add \$2.50 per copy for handling and postage.

Introduction

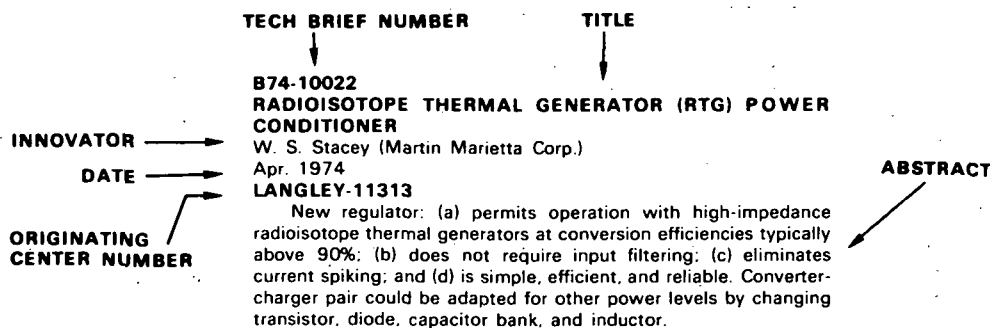
Tech Briefs are short announcements of new technology derived from the research and development activities of the National Aeronautics and Space Administration or the U.S. Atomic Energy Commission. These briefs emphasize information considered likely to be transferrable across industrial, regional, or disciplinary lines and are issued to encourage commercial application.

This *Index to NASA Tech Briefs* contains abstracts and four indexes—subject, personal author, originating Center, and Tech Brief number—for 1974 Tech Briefs.

Abstract Section

The abstract section is divided into nine categories: Electronics/Electrical; Electronic/Electrical Systems; Physical Sciences; Materials/Chemistry; Life Sciences; Mechanics; Machinery, Equipment, and Tools; Fabrication Technology; and Computer Programs. Within each category, abstracts are arranged sequentially by Tech Brief number.

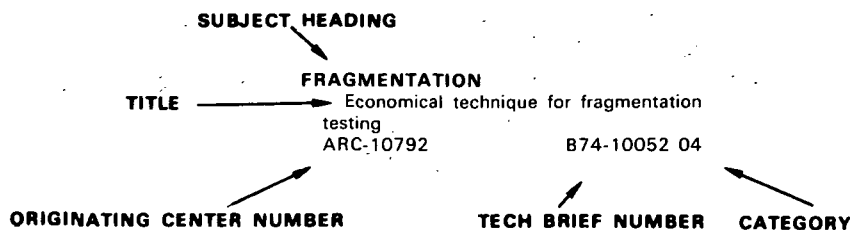
A typical abstract entry has these elements:



The originating Center number in each entry includes an alphabetical prefix that identifies the NASA Center or Atomic Energy Commission office where the Tech Brief originated. A list of prefixes and the corresponding Center names are given on page iii.

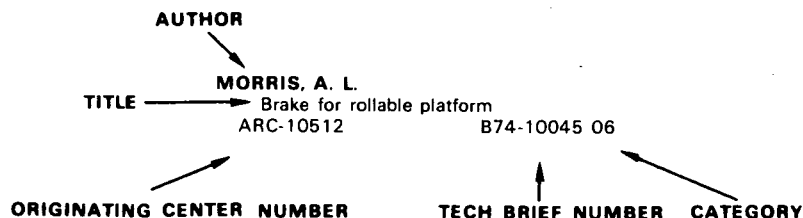
Indexes

Four indexes are provided. The first is a subject index, arranged alphabetically by subject heading. Each entry in the subject index includes a Tech Brief number and a category number to aid the user in locating pertinent entries in the abstract section.



The preliminary edition of the *NASA Thesaurus* (December 1967) (NASA SP-7030) is used as the authority for the indexing vocabulary that appears in the subject index. The *NASA Thesaurus* should be consulted in examining the current indexing vocabulary, including associated cross-reference structure. Only the subject terms that have been selected to describe the documents abstracted in this issue appear in the subject index. Copies of the *NASA Thesaurus* may be obtained from the National Technical Information Service or the U.S. Government Printing Office at \$8.50 for the three-volume set. The first two volumes of this Thesaurus, consisting of the alphabetical listing of subject terms (A-Z), have been superseded by the following single-volume publication: *NASA Thesaurus Alphabetical Update* (September 1971) (NASA SP-7040), available from NTIS for \$6.00. (Volume III of the Preliminary Edition consists of the following ancillary aids to vocabulary selection: hierarchical display of index terms, category term listing, permuted index, and a listing of postable terms only.)

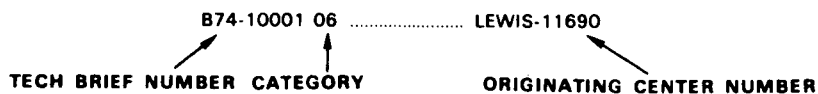
The second index is a personal author index. Entries in this index are arranged alphabetically by author's name. Tech Brief and category numbers are supplied to help the user find the appropriate entries in the abstract section.



The third index relates each originating Center number to the corresponding Tech Brief number and category. Entries in this index are arranged in alphanumeric order by Center number.



The fourth index relates each Tech Brief number to its originating Center number. Entries are arranged in ascending Tech Brief number order.



Originating Center Prefixes

NASA

ARC	Ames Research Center
ERC	Electronics Research Center
GSFC	Goddard Space Flight Center
HQ	NASA Headquarters
KSC	Kennedy Space Center
LANGLEY	Langley Research Center
LEWIS	Lewis Research Center
M-FS	Marshall Space Flight Center
MSC	Johnson Space Center (formerly Manned Spacecraft Center)
NPO	NASA Pasadena Office
XAC	Ames Research Center
XLA	Langley Research Center

Availability of NASA Tech Briefs

Subscriptions to Tech Briefs may be purchased from the National Technical Information Service, Springfield, Virginia 22161, (Attention: Code 410.4).

There are nine categories of Tech Briefs. The charge for an annual subscription to all nine categories is \$40 (foreign, \$75). Subscription rates for single categories are:

	Domestic	Foreign
Electronics/Electrical	\$25.00	\$40.00
Electronic/Electrical Systems	25.00	40.00
Physical Sciences	25.00	40.00
Materials/Chemistry	25.00	40.00
Life Sciences	25.00	40.00
Mechanics	25.00	40.00
Machinery, Equipment, and Tools	25.00	40.00
Fabrication Technology	25.00	40.00
Computer Programs	25.00	40.00

All Tech Briefs issued in 1963-1964 may be purchased for \$30 (foreign, \$40); and all Tech Briefs issued in each year since then for \$30 per year (\$40 foreign).

Requests for individual copies of Tech Briefs, and questions regarding the Tech Brief program, should be directed to:

**TECHNOLOGY UTILIZATION OFFICE (Code KT)
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D. C. 20546**

This index was prepared by the NASA Scientific and Technical Information Facility, operated for the National Aeronautics and Space Administration by Informatics Information Systems Company.

TABLE OF CONTENTS

Abstract Section

Category 01	Electronics/Electrical	1
02	Electronic/Electrical Systems	4
03	Physical Sciences	7
04	Materials/Chemistry	12
05	Life Sciences	16
06	Mechanics	17
07	Machinery, Equipment, and Tools	20
08	Fabrication Technology	22
09	Computer Programs	23

Indexes

Subject	I-1
Personal Author	I-31
Originating Center/Tech Brief Number	I-41
Tech Brief/Originating Center Number	I-43



Index to NASA Tech Briefs

February 1975

Abstract Section

01 ELECTRONICS/ELECTRICAL

B74-10006

HIGH VOLTAGE SOLID-STATE RELAY

B. L. Sater, T. J. Riley, and W. A. Janssen (Sterer Eng. and Mfg. Co.)

Mar. 1974 See also NASA-TM-X-68248

LEWIS-12096

Hybrid microelectronics relay has characteristics significantly superior to conventional solid state relays. Relay provides 2500 Vdc input to output isolation and operates from high threshold logic signal to switch load of 400 Vdc at 2 mA. Technology should be of interest to manufacturers of discrete components.

B74-10015

LOW COST INSTRUMENTATION AMPLIFIER

J. C. Sturman

Jun. 1974

LEWIS-12222

Amplifier can be used for many applications requiring high input impedance and common mode rejection, low drift, and gain accuracy on order of one percent. Performance of inexpensive amplifier approaches that of some commercial instrumentation amplifiers in many specifications.

B74-10026

RADIATION HARDENING OF METAL-OXIDE SEMICONDUCTOR (MOS) DEVICES BY BORON

V. Danchenko

Apr. 1974

GSFC-11425

Technique using boron effectively protects metal-oxide semiconductor devices from ionizing radiation without using shielding materials. Boron is introduced into insulating gate oxide layer at semiconductor-insulator interface.

B74-10047

THREE-POINT BRIDGE CALIBRATION WITH ONE RESISTOR

D. R. Harrison and R. M. Brown

May 1974

ARC-10762

Method calibrates transducer bridge curing unbalanced condition and line resistance errors are negligible. Series resistance method can be automated easily and controlled by 2-bit information source which provide 4 states for switches.

B74-10064

ELECTROMETER SYSTEM MEASURES NANOAMPS AT HIGH VOLTAGE

J. C. Sturman, G. R. Sharp, R. R. Robson, N. J. Stevens, D. H. F. Priebe, and R. G. Wetli (Boeing Co.)

Jul. 1974

LEWIS-12267

Floating electrometer eliminates major source of error since any leakage from electrometer case, which is at high voltage, appears only as load on high voltage supply and not as part of current being measured. Commands to and data from floating electrometer are transferred across high voltage interface by means of optical channels.

B74-10068

ROTATING TURBINE BLADE PYROMETER

D. R. Buchele and D. J. Lesco

Aug. 1974 See also NASA-TM-X-68113

LEWIS-12218

Non-contacting pyrometer system optically measures surface temperature distribution on rotating turbine blade, comprising line-by-line scan via fiber optic probe. Each scan line output is converted to digital signals, temporarily stored in buffer memory, and then processed in minicomputer for display as temperature.

B74-10069

SELF-PROTECTING SOLID STATE ISOLATED SWITCH

A. C. Hoffman and S. T. Gooder

Aug. 1974

LEWIS-12268

Solid state switch has following capabilities: (1) Hybrid or IC form compatible with direct mounting on solar array substrate; (2) Continuous signal is not required to hold it in either on or off state; (3) Separate signal lines for on and off control; (4) Electrically isolated from input signals; and (5) Current surges will not cause switch failure.

B74-10079

VERY HIGH VOLTAGE LATCHING RELAY

R. R. Lovell, N. J. Stevens, and D. D. Renz

Aug. 1974

LEWIS-12265

Relay consists of high voltage reed switch actuated by rotating permanent magnet mounted on stepper motor shaft, with actuation assembly isolated from high voltage circuit. Unit can be modified for use as double pole or double pole double throw latching relay and can be used in either air or vacuum.

B74-10089

PIEZOELECTRIC RELAY

D. H. Fryklund (Accumetrics Corp.)

Aug. 1974

GSFC-11627

Bimorph configurations reduce sensitivity to shock and vibration and yet respond to weak electric fields. Two bimorphs provide sum of individual movements, simulating double length.

B74-10090

EFFICIENCY INCREASED IN NEW SOLAR CELL: A CONCEPT

J. A. Hutchby

Aug. 1974

LANGLEY-11174

Graded band-gap cell should be able to convert solar radiation into electrical energy more efficiently than any solar cell currently available. Thickness of band-gap region should be chosen to maximize both quantity of light absorbed in region and fraction of photogenerated charge carriers collect at junction.

B74-10100**THIN-FILM TEMPERATURE SENSOR**

J. Maserjian and J. R. Gatewood

Aug. 1974

NPO-11775

Sensor measures rapid temperature changes in fluid streams. Sensor withstands contacts with various corrosive fluids, high fluid-flow rates, and turbulences caused by rapid changes in flow rates. Capacitor is part of resonant bridge circuit which produces ac voltage that is proportional to temperature.

B74-10107**IMPROVED SOLID-STATE TRIODE CONSTRUCTION**

A. Shumka

Aug. 1974

NPO-13064

Triode is constructed from rectangular filament made of near-intrinsic n-type silicon. Collector and emitter are formed on opposite faces of filament and are spaced approximately 0.13 mm apart. Gate electrodes are alloyed to filament and extend longitudinally along midsection of other two opposite sides, approximately 0.06 mm apart.

B74-10110**INTEGRATED STRUCTURE VACUUM TUBE: A CONCEPT**

J. Dimeff and W. J. Kerwin (Univ. of Ariz.)

Aug. 1974

ARC-10445

Cathode emission is made to occur by heating entire structure to 600 C, and positive potential is applied to anode with negative potential on grids. Electron flow takes place from ring to circular anode through electric field produced by grids.

B74-10112**BIO-ISOLATED DC OPERATIONAL AMPLIFIER**

R. D. Lee

Aug. 1974

ARC-10596

Possibility of shocks from leakage currents can be reduced by use of isolated preamplifiers. Amplifier consists of battery-powered operational amplifier coupled by means of light-emitting diodes to another amplifier which may be grounded and operated from ac power mains or separate battery supply.

B74-10120**DECIMAL DIGIT GENERATOR FOR COMMUTATED DATA: A CONCEPT**

S. J. Rusk (Lockheed Missiles and Space Co.)

Aug. 1974

ARC-10856

Perform analog-to-digital conversion on input signal with staircase circuit having 10% resolution, convert digital result to analog voltage, subtract it from original input signal; read out feedback signals as decimal digit representation during one clock phase and servo-error difference between input and feedback as analog portion during following clock phase.

B74-10160**POCKET GAUGE FOR CHECKING INSERT CLOCKING OF MULTIPIN CIRCULAR CONNECTORS**

E. Billmeyer

Sep. 1974

NPO-11924

Prototype gauge has been constructed of heavy clear plastic with engraved degree lines, numerals, and alignment lines. With suitable modification, gauge can be mass produced. It could be marketed directly to users or to manufacturers of circular multipin connectors.

B74-10180**MINIATURE BIAxIAL STRAIN TRANSDUCER**

I. S. Hoffman

Oct. 1974

LANGLEY-11648

Transducer is completely reusable and permits relocation to alternate points to be accomplished quickly. Size permits measurements to be made simultaneously over small areas and yields outputs directly proportional to strains measured. Transducer verifies elastic modulus, Poisson's ratio, and principal strain axes on materials.

B74-10192**MICROELECTRONICS PACKAGING TECHNIQUE: A CONCEPT**

E. J. Stringer (Rockwell Intern. Corp.)

Nov. 1974

MSC-19399

Plug-in flat packs and flat conductor cable (FCC) can be used to make compact, lightweight, external monitoring system requiring minimum of hard wiring. Microelectronic monitoring panel includes replaceable integrated or hybrid circuit flat packs and FCC.

B74-10196**HEART-RATE PULSE-SHIFT DETECTOR**

M. Anderson (Northrop Corp./Electronics Div.)

Nov. 1974

ARC-10729

Detector circuit accurately separates and counts phase-shift pulses over wide range of basic pulse-rate frequency, and also provides reasonable representation of full repetitive EKG waveform. Single telemeter implanted in small animal monitors not only body temperature but also animal movement and heart rate.

B74-10197**REFERENCE APPARATUS FOR MEDICAL ULTRASONIC TRANSDUCER**

R. D. Lee, R. J. Hudock, and D. I. Shute

Nov. 1974

ARC-10753

Once reference apparatus has been located properly, and its position on chest of patient has been recorded on skin by means of indelible fiducial marks, it is simple matter at later time to reposition probe on chest over heart. In this way, signals from exact same area of heart can be re-examined.

B74-10209**INTERPLEX MODULATION AND A SUPPRESSED-CARRIER TRACKING LOOP FOR COHERENT COMMUNICATIONS SYSTEMS**

S. Butman and U. Timor

Nov. 1974

NPO-11572

Simple addition to hardware and new mode of operation of transmitter and receiver in coherent, PCM/PSK/PM configuration greatly improves channel efficiency. Procedure reduces amount of power lost to intermodulation products.

B74-10234**A METHOD FOR POLYCRYSTALLINE SILICON DELINEATION APPLICABLE TO A DOUBLE-DIFFUSED MOS TRANSISTOR**

J. L. Halsor (Westinghouse Elec. Corp.) and H. C. Lin (Westinghouse Elec. Corp.)

Dec. 1974

LANGLEY-11536; LANGLEY-11598

Method is simple and eliminates requirement for unreliable special etchants. Structure is graded in resistivity to prevent punch-through and has very narrow channel length to increase frequency response. Contacts are on top to permit planar integrated circuit structure. Polycrystalline shield will prevent creation of inversion layer in isolated region.

B74-10239**IMPROVED CIRCUIT-BOARD INTERCONNECTORS**

J. H. Martin (Charles Stark Draper Lab., Inc.)

Dec. 1974

MSC-12661

One component serves three functions, electrical interconnections, thermal control, and mechanical integrity, at same time. Several versions of design: (1) Insulated support plate contains holes; (2) Alternate support plate configuration uses rivets instead of pins; and (3) Another configuration includes leaf-spring contacts instead of pins or rivets.

B74-10242

HIGH-VOLTAGE DISTRIBUTORS

J. F. McChesney, Jr.

Dec. 1974

GSFC-11849

Two distributors reduce high-voltage breakdowns and corona discharges. Both distributors are constructed to prevent air traps and facilitate servicing without soldering. Occurrence of coronas is also minimized due to smooth surfaces of device.

B74-10251

PHASED-ARRAY ANTENNA PHASE CONTROL CIRCUIT USING FREQUENCY MULTIPLICATION

R. J. Mailloux and P. R. Caron

Jan. 1975

ERC-10285

Circuit separates out, from multiplied signals, antenna element signals which have desirable phase angles and feeds them to appropriate antenna elements of phased array. System may be used in either transmitting or receiving mode.

B74-10253

SELF-PROTECTED ELECTRODES LIMIT FIELD-EMISSION CURRENT

W. L. Lees

Jan. 1975

ERC-10015

One cathode includes array of square-shaped conductor columns. Columns are electrically interconnected by conducting plate on bottom. Each column provides field-emission current. Another cathode includes array of rodlike conductors. Layer is covered by control film made of conducting material. Film is isolated from each conductor.

B74-10255

AMPLITUDE-STEERED, PSEUDOPHASED ANTENNA ARRAY

C. C. Johnson, R. J. Martel (Westinghouse), F. J. Dietrich (Philco Ford Corp.), and G. J. Koloboff (Philco Ford Corp.)

Jan. 1975

GSFC-11446

Beam may be smoothly scanned around ring array without instantaneous phase transitions while maintaining constant radiated power by gradually transferring power from receding element to element next to leading edge of driven segment, and by accomplishing antenna element switching during intervals when no power is being applied to elements being switched.

B74-10256

SYNCHRONIZED FREQUENCY TRANSPOSER

J. F. Sutton

Jan. 1975

GSFC-11763

Transposer operates entirely in analog domain. Input analog signal is serially loaded into analog register at rate determined by voltage-controlled oscillator. At same time, signal is serially unloaded from other register at expanded time rate determined by divider output feeding through switch.

B74-10257

BIDIRECTIONAL ZOOM ANTENNA

R. F. Schmidt

Jan. 1975 See also B74-10041

GSFC-11862

Antenna comprises two parabolic cylinders placed orthogonally to each other. One cylinder serves as main reflector, and

the other as subreflector. Cylinders have telescoping sections to vary antenna beamwidth. Beamwidth can be adjusted in elevation, azimuth, or both. Design has no restriction as to choice of polarization.

B74-10258

OPTICAL COMMUNICATION CHANNEL SIMULATOR SYSTEM

M. W. Fitzmaurice and M. Tycz

Jan. 1975

GSFC-11877

Optical transmission link is simulated by positioning linear optical modulator between optical carrier source and receiver for carrier. Optical modulator is driven by analog signal, derived from analog computer circuit, having random variations indicative of characteristics of transmission link.

B74-10259

COLOR-CODED AREA SENSITIVITY MAPS OF PHOTOMULTIPLIERS

O. Youngbluth, Jr.

Jan. 1975

LANGLEY-10320

Technique was devised specifically for testing photomultipliers and other photodetectors, but it could also be used to color code any type of mapping data, such as weather or topographical maps, thermal or pressure distributions on reentry surfaces, or any other three-dimensional data to be displayed in two-dimensional form.

B74-10260

HORN ANTENNA WITH V-SHAPED CORRUGATED SURFACE

F. B. Beck, C. A. Mentzer (Ohio State Univ.), and L. Peters, Jr. (Ohio State Univ.)

Jan. 1975 See also NASA-CR-2317

LANGLEY-11112

Corrugated shape is easily machined for millimeter wave application and is better suited for folding antenna designs. Measured performance showed "V" corrugations and rectangular corrugations have nearly the same pattern beamwidth, gain, and impedance. Also, "V" corrugations have higher relative power loss.

B74-10262

DEPOSITING SPACING LAYERS ON MAGNETIC FILM WITH LIQUID PHASE EPITAXY

J. W. Moody (Monsanto Res. Corp.), R. W. Shaw (Monsanto Res. Corp.), and R. M. Sanford (Monsanto Res. Corp.)

Jan. 1975 See also NASA-CR-2413

LANGLEY-11528

Liquid phase epitaxy spacing layer is compatible with systems which are hard-bubble proofed by use of second magnetic garnet film as capping layer. Composite is superior in that: circuit fabrication time is reduced; adherence is superior; visibility is better; and, good match of thermal expansion coefficients is provided.

B74-10274

DIGITAL SECOND-ORDER PHASE-LOCKED LOOP

J. K. Holmes, C. Carl, and C. R. Tagnelia

Jan. 1975

NPO-11905

Actual tests with second-order digital phase-locked loop at simulated relative Doppler shift of 1×0.0001 produced phase lock with timing error of 6.5 deg and no appreciable Doppler bias. Loop thus appears to achieve subcarrier synchronization and to remove bias due to Doppler shift in range of interest.

B74-10280

RELIABILITY DATA FOR ELECTRONIC AND ELECTRO-MECHANICAL COMPONENTS: A REPORT

W. R. Scott

Jan. 1975

NPO-13153

Ten classes of parts covered in report: capacitors, crystals,

01 ELECTRONICS/ELECTRICAL

diodes, fuses, inductors, microcircuits, relays, fixed resistors, transformers, and transistors. Each class is contained in separate section and includes discussion of inherent failure modes, screening rationale, general screening requirements, derating criteria, and stress-analysis data.

B74-10281

STRAIGHT-LINE IC REMOVAL TOOL

R. A. Marzek and W. S. Read

Jan. 1975

NPO-13157

Tool operates by applying force perpendicularly to socket plane. Tool can be operated in cramped or confined quarters and can effect integrated circuit removal without damage. It may also be useful to hold nut or bolt in confined space while tightening, when it is not possible to use conventional tool.

B74-10282

DC-TO-AC INVERTER RATIO FAILURE DETECTOR

T. J. Ebersole (GE) and R. E. Andrews (GE)

Jan. 1975

NPO-13160

Failure detection technique is based upon input-output ratios, which is independent of inverter loading. Since inverter has fixed relationship between V-in/V-out and I-in/I-out, failure detection criteria are based on this ratio, which is simply inverter transformer turns ratio, K, equal to primary turns divided by secondary turns.

B74-10283

LOW-LOSS, CIRCULARLY-POLARIZED DICHROIC PLATE

R. T. Woo and A. Ludwig

Jan. 1975

NPO-13171

Dichroic plate has orthogonally-disposed, loaded dipole apertures with their orientations arranged so as to cancel cross-coupling effects which would otherwise result in power loss to circularly polarized signal.

B74-10286

MICROMETEOROID VELOCITY-AND-TRAJECTORY ANALYZER

S. O. Auer (Natl. Acad. of Sci.)

Feb. 1975

GSFC-11889

By adding potential energy of charged capacitor to kinetic energy of impacting particle, new technique causes major fraction of atoms in microscopic particle impacting on particle-receiving surface to be ionized. Chemical constituents of impacting particle are represented by generated ion mass spectrum in approximately correct proportions.

B74-10287

MICROMETEOROID COMPOSITION ANALYZER

S. O. Auer (Natl. Acad. of Sci.)

Feb. 1975

GSFC-11892

Technique has been developed to detect moving charged particles and to determine their positions and/or their velocity vectors, relative to three mutually orthogonal axes, without particle impact or any elements of detector and without changing particle charge or motion.

B74-10290

ALIGNMENT FIXTURE FOR PRECISION CUTTING OF PRINTED-WIRING BOARDS

M. L. Holliday

Feb. 1975

LANGLEY-11658

Six alignment templates are used to trim-cut majority of boards fabricated. Their use has reduced time required for cutting operation and has also reduced high rejection rate of cut boards to near zero.

B74-10294

IMPROVED FABRICATION OF ELECTROLYTIC CAPACITORS

F. J. Gamari (Sprague Elec. Co.) and J. L. Moresi (Sprague Elec. Co.)

Feb. 1975

M-FS-23133

After processing parts for assembly, insulative cup is fitted to bottom of can, then electrolytic solution consisting of white sulfuric acid gel is inserted into can. Pellet is put in can and is fitted tightly into cup. Finally, bead weld is formed between can and header plug.

B74-10295

STABLE GROUP DELAY CABLE

P. A. Clements

Feb. 1975

NPO-13138

It was found that group delay is function of pressure in air dielectric coaxial cable. For example, 600-ft air dielectric cable will change phase 10 deg at 150 MHz when air pressure in cable changes from zero to 20 psi.

02 ELECTRONIC/ELECTRICAL SYSTEMS

B74-10004

SELF-HEALING FUSE

N. D. Jones (GE), R. E. Kinsinger (GE), and L. P. Harris (GE)

Mar. 1974 See also NASA-CR-121244

LEWIS-11964

Fast-acting current limiting device provides current overload protection for vulnerable circuit elements and then re-establishes conduction path within milliseconds. Fuse can also perform as fast-acting switch to clear transient circuit overloads. Fuse takes advantage of large increase in electrical resistivity that occurs when liquid metal vaporizes.

B74-10021

DATA PROCESSOR WITH CONDITIONALLY SUPPLIED CLOCK SIGNALS

R. J. Lesniewski

Apr. 1974

GSFC-10975

Parallel data processor clock pulses are conditionally supplied to processing unit in response to relative values of binary bit of control source and binary bit derived on single lead. Use of single lead simplifies fabrication of large-scale integrated networks.

B74-10024

TRAFFIC CONTROL SYSTEM AND METHOD

C. R. Laughlin, R. C. Hollenbaugh, and W. K. Allen

Apr. 1974

GSFC-10087

Frequency of carrier received by aircraft is measured and compared with reference to indicate magnitude of Doppler shift. One Doppler frequency range is selected and indicated by digital signal. Difference between frequency is offset of apparent carrier frequency transmitted by aircraft.

B74-10025

LOW-DISTORTION RECEIVER FOR BILEVEL, BASEBAND PCM WAVEFORMS

G. E. Proch (Lockheed Electron. Co.)

Apr. 1974

MSC-14557

Digital receiver improves discrimination between information signals and noise and provides order to magnitude reduction in systematic distortion. Receiver combines advantages of band-limiting prefilter and high-amplitude thresholds to provide asynchronous discrimination between information signals and spurious signals.

B74-10035**HIGH Q BAND-PASS RESONATORS UTILIZING COMPOSITE BAND-STOP RESONATOR PAIRS**

H. C. Okean (AIL Div., Cutler-Hammer Corp.)

Jul. 1974

GSFC-10990

Resonator pairs are formed of composite series- or parallel-connected transmission-line elements, which are exclusively quarter-wavelength half-wave-length lines. Resonator elements are constructed with microstriplines in parallel planes separated by dielectric. Striplines of coaxial transmission lines can be used in construction also.

B74-10041**VARIABLE-BEAMWIDTH ANTENNAS**

R. F. Schmidt

Jul. 1974

GSFC-11760

Two effective designs have been developed for Cassegrain and Gregorian antenna configurations. Each provides for both high-gain and low-gain operations. Cassegrain system sacrifices some efficiency due to small amount of increased spillover loss. Gregorian system provides for independent spillover control with two feeds.

B74-10050**HIGH-DIRECTIVITY ACOUSTIC ANTENNA**

H. M. A. EL-Sum (EL-Sum Consultants)

May 1974 See also NASA-CR-114636

ARC-10789

Acoustic antenna with unique electronic steering control is used to identify and define aerodynamic noise sources in free field, particularly in wind tunnel which is quite reverberant. Provision is made for high directivity as well as improved discrimination against unwanted background noise such as reverberation or echoes.

B74-10078**FAIL-SAFE FIRE DETECTION SYSTEM**

E. T. Bloam

Aug. 1974

LEWIS-12238

Fire detection control system continually monitors its own integrity, automatically signals any malfunction, and separately signals fire in any zone being monitored. Should be of interest in fields of chemical and petroleum processing, power generation, equipment testing, and building protection.

B74-10083**ELECTRONIC HIGH PASS FILTER**

V. S. Peterson and I. G. Hansen

Aug. 1974

LEWIS-11600

Ultra accurate filter is used with static type pressure transducers where it is desirable to extract low frequency dynamic signals from combined static and dynamic signal. System can be calibrated at any time with dc voltages.

B74-10086**A LOW COST "AIR MASS 2" SOLAR SIMULATOR**

K. Yass, H. B. Curtis, and P. Harlamert, Jr.

Sep. 1974 See also NASA-TM-X-3059

LEWIS-12266

Tungsten halogen projection lamps have integral ellipsoidal reflector, and hexagonal shaped plastic Fresnel lenses. Reflector is dichroic coated to reduce infrared content of reflected radiation. Array of lamps and lenses produces uniform collimated beam having near AM2 spectrum and intensity that can be used for testing flat plate solar collectors.

B74-10088**TIME-CONTROL SYSTEM FOR COMMUNICATION BETWEEN DATA-COLLECTION AND ORBITING**

C. W. Kurvin (Radiation, Inc.)

Aug. 1974

GSFC-11182

Platform design includes timers which limit data transmission to times when satellites are within radio communication range. As result of reduced power requirement, data-collection platforms now can be equipped with significantly lighter battery packages.

B74-10093**GENERALIZED CURRENT DISTRIBUTION RULE**

M. A. Tapia (Ga. Inst. of Tech.)

Aug. 1974

LANGLEY-11565

Method helps determine branch current in parallel-series network in relation to total input current by inspection. Method is particularly useful for circuits with many elements when branch elements are described as admittances. If element values are variables, then these values may be expressed as admittances to find currents readily in desired branches.

B74-10097**POCKET-SIZE MICROWAVE RADIATION HAZARD DETECTOR**

R. B. Kolbly

Aug. 1974

NPO-11461

Inexpensive lightweight unit is easily carried in coat pocket or attached to belt, detector sounds alarm in presence of dangerous microwave radiation levels. Unit consists of antenna, detector, level sensor, keyed oscillator, and speaker. Antenna may be single equiangular spiral or set of orthogonal slot dipoles. Signal detector is simple diode in small package.

B74-10098**FREQUENCY DISCRIMINATOR/PHASE DETECTOR**

R. B. Crow

Aug. 1974

NPO-11515

Circuit provides dual function of frequency discriminator/phase detector which reduces frequency acquisition time without adding to circuit complexity. Both frequency discriminators, in evaluated frequency discriminator/phase detector circuits, are effective two decades above and below center frequency.

B74-10099**FACILITY FOR TESTING SOLAR CELLS**

R. K. Yasui

Aug. 1974

NPO-11761

Primary components of facility are test chamber and external solar simulator. Voltage-current performance characteristics of solar cells at various combinations of temperature and light intensity are plotted on X-Y recorder. Data are fed into computer for calculation of maximum power, curve shape factor, cell efficiency, and averages of each parameter.

B74-10104**THIRD-ORDER PHASE-LOCKED LOOP RECEIVER**

R. B. Crow and R. C. Tausworthe

Aug. 1974

NPO-11941

Third-order extension to present second-order systems extends their Doppler tracking capabilities. It widens receiver pull-in range, decreases pull-in time, lowers voltage-controlled oscillator (VCO) noise (determining when no signal is present), and lessens susceptibility to VCO drift.

B74-10106**TEMPERATURE COMPENSATION OF DIGITAL INERTIAL SENSORS**

P. J. Hand

Aug. 1974

NPO-13044

Heaters for thermal stabilization are unnecessary when analog dc voltage provided by gyroscope temperature sensor is used to change outputs to compensate for temperature variations. Sensor is normally installed on all precision gyroscopes.

02 ELECTRONIC/ELECTRICAL SYSTEMS

B74-10109

FAST SIGNAL AVERAGER

T. N. Cornsweet (Stanford Res. Inst.)

Aug. 1974

ARC-10090

Electron beam of cathode ray tube with fast phosphor is intensity-modulated by input signal to produce repetitive horizontal trace of luminous intensity proportional to time-varying signal strength. Horizontal trace of cathode ray tube occurs so repetitive portion of signal of interest is encompassed within its length.

B74-10115

ANALYSIS OF ORBITAL HEAT TRANSFER

T. Buna (Martin Marietta Corp.)

Aug. 1974

ARC-10842

Radar mapping of planets can be accomplished at lower cost and with reduced emphasis on propulsion system capability from spacecraft operating in elliptical orbit than from circular orbit.

B74-10137

ANTI-MULTIPATH DIGITAL SIGNAL DETECTOR

J. H. Painter

Sep. 1974

LANGLEY-11379

Detector operates in conjunction with radio frequency portion of receiver to detect digital signals transmitted in known modulation formats. Signal is constructed by assigning known and distinct modulation waveforms to sequence of message symbols. It reconstructs transmitted digital sequence with minimum probability that any reconstructed digit will be in error.

B74-10142

MAGNETOMETER WITH MINIATURE TRANSDUCER AND AUTOMATIC TRANSDUCER SCANNING APPARATUS

R. A. Breckenridge, W. J. Debnam, Jr., C. L. Fales, and A. V. Pohm (Iowa State Univ.)

Sep. 1974

LANGLEY-11617

Magnetometer is simple to operate and has fast response. Transducer is rugged and flat and can measure magnetic fields as close as 0.08 mm from any relatively flat surface. Magnetometer has active region of approximately 0.64 by 0.76 mm and is capable of good spatial resolution of magnetic fields as low as 0.02 Oe (1.6 A/m).

B74-10147

ERROR-CORRECTING CODES FOR HIGH-SPEED DIGITAL COMPUTERS

R. D. Campbell (Sperry Rand Corp.)

Sep. 1974

M-FS-22887

Published document discusses method for correcting errors. According to this method, computer operation becomes fault-tolerant, i.e., its operation is error-free in spite of single hardware element malfunction. Also, method provides for detection and correction of repetitive and spurious processing and transmission errors.

B74-10150

CLOSED-CIRCUIT-TELEVISION WELDING-ELECTRODE GUIDANCE SYSTEM

H. E. Smith, D. L. Stephens, R. A. Taylor, W. A. Wall, R. M. Avery, and H. P. Wunsch (Hayes Intern. Corp.)

Sep. 1974

M-FS-23026

Closed-circuit TV camera is mounted parallel to electrode and moves along with it. Camera is scanned along seam so seam is viewed parallel with scan lines on TV monitor. Two fiber optics illuminators are attached to guidance system; they illuminate seam for TV camera.

B74-10158

IMPROVED THERMAL ISOLATION FOR SUPERCONDUCTING MAGNET SYSTEMS

E. R. Wiebe

Sep. 1974

NPO-11875

Closed-cycle refrigerating system for superconductive magnet and maser is operated in vacuum environment. Each wire leading from external power source passes through cooling station which blocks heat conduction. In connection with these stations, switch with small incandescent light bulb, which generates heat, is used to stop superconduction.

B74-10162

IMPROVED CAPACITANCE MULTIPLIER CIRCUIT

A. J. Kline, Jr. (Motorola, Inc.)

Sep. 1974

NPO-11948

Circuit multiplies capacitance without increasing overall circuit gain. In addition, circuit may be designed to include lag or lead/lag transfer function and independent gain adjustment.

B74-10163

MINICOMPUTER-CONTROLLED FREQUENCY GENERATOR

R. A. Winkelstein

Sep. 1974

NPO-11962

Extremely-accurate and low-phase-noise frequency generator varies oscillator frequency as predetermined function of time. System could be used: (a) to automatically vary transmission frequencies in accordance with seasonal and diurnal changes in ionospheric conditions, (b) as automatic tuner for heterodyne receivers, or (c) as control element for phase-locked telemetry receivers.

B74-10165

ADVANCED-PRIORITY INTERRUPT MODULE

H. L. Jeane

Sep. 1974

NPO-13067

Module contains mask register, line register, primary sync register, secondary sync register, push-pop stacking register, control section, and interrupt address generator. APIM operates in conjunction with logic found in majority of minicomputers to provide fully-vectored interrupt capabilities.

B74-10170

CONTINUOUS FOURIER TRANSFORM SYSTEM

R. M. Munoz

Sep. 1974

ARC-10466

Complex digital computer is not required, only summing amplifiers and attenuators are used for transformation of signal. Continuous transform system may be used for spectrum analysis, filtering, transfer function synthesis, and communications.

B74-10171

G-LOAD INDICATOR AND WARNING DEVICE FOR AIRCRAFT

J. C. Howard

Sep. 1974

ARC-10806

Device facilitates pilot control of g-load maneuvers and provides immediate indication of g-load constraint violations. It may be used in test flights, in aircraft simulators, or in displays of performance of remotely piloted aircraft.

B74-10176

MAGNETIC-HEADING REFERENCE DEVICE

H. D. Garner

Oct. 1974 See also NASA-TN-D-7460

LANGLEY-11387

Inexpensive and reliable device is used in conjunction with fluidic-electronic wing-leveler system. Single magnetometer is placed so pilot can make adjustments in aircraft heading simply by rotating magnetometer itself.

B74-10178**WIDE DEVIATION PHASE MODULATOR**

R. H. Couch, C. P. Hearn, and L. R. Wilson (LTV Aerospace Corp.)

Oct. 1974

LANGLEY-11607

Modulator produces phase-modulated waveform having high modulating linearity. Technique is inherently wideband with respect to carrier frequency and can operate over decade carrier frequency range without adjustments. Circuit performance is both mathematically predictable and highly reproducible.

B74-10191**REDUCTION OF QUANTIZATION ERROR IN MEASUREMENT OF FREQUENCY**

E. J. Nossen (RCA) and E. R. Starner (RCA)

Nov. 1974

MSC-14649

Method reduces quantization errors using new digital circuit. Circuit provides very high resolution (10 to the minus 2nd power to 10 to the minus 3rd power Hz) without high-speed counters. It lends itself to microminaturization and is simple to construct. Unknown frequency is compared to standard frequency by means of zero-crossing coincidence-detecting circuit.

B74-10198**SPACECRAFT ATTITUDE DETERMINATION BY FANSCAN TECHNIQUE**

H. A. Lassen (TRW Systems Group, TRW, Inc.) and J. H. Decanini (TRW Systems Group, TRW, Inc.)

Nov. 1974

ARC-10827

To determine orientation, or attitude, of spacecraft in flight relative to data-receiving antenna on earth use fanbeam antenna which is offset in angle from spin axis of spacecraft and provides fan-like radiation pattern.

B74-10250**IMPROVED CIRCULARLY POLARIZED ANTENNA**

L. C. Van Atta and R. J. Mailloux

Jan. 1975

ERC-10214

Antenna includes two sets of linearly polarized elements. Each set contains slots in parallel array. Sets are mutually orthogonal and are driven in phase quadrature. By changing lengths of slots or their separations, antenna beamwidth can be changed over wide range. Similar results are achieved with dipole configuration.

B74-10276**NEGATIVE ION SPECTROMETRY FOR DETECTING NITRATED EXPLOSIVES**

H. G. Boettger and J. Yinon

Jan. 1975

NPO-13082

Ionization procedure is modified to produce mainly negative ions by electron capture. Peaks of negative ions are monitored conventionally. Nitrated organic materials could be identified directly from sample sniff inlet stream by suitably modified mass spectrometer because of unique electronegativity which nitro group imparts to organic material.

B74-10277**FULL-FLOW FLUID FILTER**

L. R. Toth and R. Hagler, Jr.

Jan. 1975

NPO-13118

Etched-disk filter was developed with fluid passageways in configuration which allows relatively unrestricted flow of fluid and has stagnation areas for collection of impurities. In addition, filter housing without center post was developed to improve flow characteristics.

B74-10284**TELECOMMUNICATIONS SYSTEMS DESIGN TECHNIQUES HANDBOOK**

R. E. Edelson, J. R. Gilder, G. W. Garrison, A. J. Spear, P. M. Kotani, B. D. Trumpis, B. K. Levitt, C. E. Hanna, and B. Dorsch

Jan. 1975

NPO-13245

Handbook presents design and analysis of tracking, telemetry, and command functions utilized in these systems with particular emphasis on deep-space telecommunications. Antenna requirements are also discussed. Handbook provides number of tables outlining various performance criteria. Block diagrams and performance charts are also presented.

B74-10285**LOGARITHMIC-FUNCTION GENERATOR**

P. R. Caron

Feb. 1975

ERC-10267

Solid-state logarithmic-function generator is compact and provides improved accuracy. Generator includes a stable multivibrator feeding into RC circuit. Resulting exponentially decaying voltage is compared with input signal. Generator output is proportional to time required for exponential voltage to decay from preset reference level to level of input signal.

B74-10288**HIGH-EFFICIENCY MULTIFREQUENCY FEED**

J. S. Ajioka (Hughes Aircraft Co.), G. I. Tsuda (Hughes Aircraft Co.), and W. A. Leeper (Hughes Aircraft Co.)

Feb. 1975

GSFC-11909

Mutual blockage and mutual coupling are eliminated with multifrequency feed. Feed provides common aperture for 6-GHz and 4-GHz bands and crossed dipole for 1-GHz band. Design is highly efficient and has good polarization diversity.

B74-10296**HIGH-SPEED FAULT-TOLERANT TELEMETRY/COMPUTER INTERFACE**

G. C. Gilley

Feb. 1975

NPO-13139

Fault-tolerant telemetry/computer interface allows memory sharing by two data processing systems and maintains integrity of fault-tolerant environment of computer.

B74-10299**APPARATUS FOR HEAT TREATING PLASTIC BELTS**

A. Topits, Jr.

Feb. 1975

NPO-13205

Apparatus performs programed rotating, stretching/shrinking and heat treatment necessary to fabrication of high-performance plastic belts. Belts can be treated in lengths varying from 7 to 48 in., in widths up to 1 in., and in thicknesses up to approximately 0.003 in.

B74-10300**LOCATION OF VEHICLES USING AM STATION BROADCASTING SIGNALS**

G. R. Hansen, Jr.

Feb. 1975

NPO-13217

Imaginary hyperbolic grid patterns formed by three local AM broadcasting stations were utilized in study. Each hyperbola is defined by constant phase difference between arbitrary signals integrally related to those coming from two stations. When three stations are used, grid is formed covering area with intersecting hyperbolas.

03 PHYSICAL SCIENCES**B74-10012****ZEROS OF CERTAIN CROSS PRODUCTS OF BESSEL FUNCTIONS OF FRACTIONAL ORDER**

03 PHYSICAL SCIENCES

W. A. Rostafinski
Apr. 1974 See also NASA-TM-X-2698
LEWIS-12221

Interpolation between values given in table of zeros is permitted provided curve is traced between at least three values from table. Zeros have been obtained on digital computer and results were rounded off to the fourth decimal point.

B74-10019 DIRECTORY OF AEROSPACE SAFETY SPECIALIZED INFORMATION SOURCES

E. A. Fullerton (Systems Develop. Corp.), L. S. Rubens (Systems Develop. Corp.), G. Mandel, and P. J. McKenna
Jun. 1974 See also NASA-CR-121206

LEWIS-12223

Directory aids safety specialists in locating information sources and individual experts in engineering-related fields. Lists 170 organizations and approximately 300 individuals who can provide safety-related technical information in form of documentation, data, and consulting expertise. Information on hazard and failure cause identification, accident analysis, and materials characteristics are covered.

B74-10022 RADIOISOTOPE THERMAL GENERATOR (RTG) POWER CONDITIONER

W. S. Stacey (Martin Marietta Corp.)

Apr. 1974

LANGLEY-11313

New regulator: (a) permits operation with high-impedance radioisotope thermal generators at conversion efficiencies typically above 90%; (b) does not require input filtering; (c) eliminates current spiking; and (d) is simple, efficient, and reliable. Converter-charger pair could be adapted for other power levels by changing transistor, diode, capacitor bank, and inductor.

B74-10038 DUALY-MODE-LOCKED ND: YAG LASER

J. Osmundson, E. Rowe, and D. Santaripa

Jul. 1974

GSFC-11746

Mode-locking is stabilized effectively by conventional loss-modulator and phase-modulator, mode-locking elements placed in laser cavity in optical series with one another. Resulting dually-mode-locked system provides pulses with constant phase relative to mode-lock drive signal without presence of relaxation oscillation noise.

B74-10042 RECORDER/PROCESSOR APPARATUS

I. H. Shim (Image Inform. Inc.) and J. J. Stelben (Image Inform. Inc.)

Jul. 1974

GSFC-11553

Laser beam is intensity modulated in response to incoming video signals. Latent image is recorded on rotating drum which generates raster in conjunction with incrementally-driven lens carriage. Image is fed automatically to thermal processor; actual image is developed by controlled application of heat onto medium containing latent image.

B74-10051 RADIOISOTOPE HEATER

T. H. Smith, III (TRW Systems Group, TRW, Inc.), D. B. Evans (TRW Systems Group, TRW, Inc.), and A. J. Steinberger (TRW Systems Group, TRW, Inc.)

May 1974

ARC-10791

One-watt heater unit is about size of flashlight cell and can be safely handled for several minutes without danger. Unit is completely sealed and can withstand buildup of helium pressure from isotope disintegration for up to 30 years. Number of units can be safely grouped together.

B74-10054

EXTENDIBLE PROBE FOR ATMOSPHERE SAMPLING

W. J. Jones (McDonnell-Douglas Corp.), G. D. Mitchell (McDonnell-Douglas Corp.), and G. M. Jones (McDonnell-Douglas Corp.)
May 1974

ARC-10829

Sampling probe is extended through small plug in heat shield by loaded bellows to sample planetary atmosphere for compositional analysis and total pressure during entry of space probe. Assembly prevents contamination of sample by gases from pyrotechnic device and serves as sealed plenum for atmospheric pressure sensor.

B74-10055

TOROIDAL EQUIPMENT PACKAGING

W. J. Jones (McDonnell-Douglas Corp.) and J. W. Sherwood (McDonnell-Douglas Corp.)

May 1974

ARC-10828

For optimal packaging of equipment in shallow-cone vehicle toroidal packaging sets center of gravity of equipment forward. Packages are supported on rings within probe structure to provide low center of gravity. System permits interchanging of units for balance control, so minimum of lateral ballast is required.

B74-10056

BATTERY ACTIVATION SYSTEM

C. Sollo (McDonnell-Douglas Corp.), D. L. Smith (McDonnell-Douglas Corp.), and V. P. King (McDonnell-Douglas Corp.)

May 1974

ARC-10832

Initiator is fired to set off gas generator; gas flows into manifold and as gas pressure increases, chlorotrifluoroethylene diaphragms transfer force to polyethylene bags filled with electrolyte. Small membrane at base of each bag is ruptured, allowing electrolyte to flow into cells.

B74-10060

MEASUREMENT OF TEMPERATURE PROFILES IN HOT GASES AND FLAMES

R. S. Simmons (Univ. of Mich.), H. Y. Yamada (Univ. of Mich.), G. H. Lindquist (Univ. of Mich.), and C. B. Arnold (Univ. of Mich.)

Jul. 1974 See also NASA-CR-120894; NASA-CR-72491

LEWIS-12055

Computer program was written for calculation of molecular radiative transfer from hot gases. Shape of temperature profile was approximated in terms of simple geometric forms so profile could be characterized in terms of few parameters. Parameters were adjusted in calculations using appropriate radiative-transfer expression until best fit was obtained with observed spectra.

B74-10063

LONG LIFE NEUTRON GENERATOR TARGET USING DEUTERIUM PASS-THROUGH STRUCTURE

D. L. Alger

Jul. 1974

LEWIS-11866

Target structure permits all deuterons, except the one-in-a-million that interacts with tritium atom to produce a neutron, to pass completely through target structure and be returned to vacuum system. Since tritium atoms are not displaced as in conventional targets, tritium population will remain unchanged while under deuteron bombardment.

B74-10065

METHOD OF MEASURING THE THICKNESS OF RADIOAC- TIVE THIN FILMS

D. L. Alger, R. Steinberg, and M. D. Makinen

Jul. 1974 See also NASA-TM-X-68170

LEWIS-11971

Thickness monitor consists of proportional X-ray counter coupled to pulse counting system, copper filter over face of counter, rotatable collimator containing radioactive source, and rotatable shutter. Monitor can be used as integral part of neutron generator. It has been used to measure titanium tritide film thicknesses from 0.1 to 30 micrometers.

B74-10066**A HIGH YIELD NEUTRON TARGET**

D. L. Alger, R. Steinberg, and P. Weisenbach

Aug. 1974 See also B74-10065; NASA-TM-X-68179

LEWIS-12058

Target, in cylinder form, rotates rapidly in front of beam. Titanium tritide film is much thicker than range of accelerated deuteron. Sputtering electrode permits full use of thick film. Stream of high-velocity coolant provides efficient transfer of heat from target.

B74-10071**MODULATED HYDROGEN-ION FLAME DETECTOR: A CONCEPT**

J. Dimeff

Jun. 1974

ARC-10322

To improve sensitivity of flame ionization detectors chop flow of sample into flame so resulting ionization will be modulated and therefore readily amplified independently of steady-state background ionization, thermoelectric effects, contact potentials, etc. Detector should discriminate sharply between desired signal and undesired signals.

B74-10072**PROBE FOR MEASURING TURBULENT REAL-TIME SHEAR-STRESS WAVES**

D. Y. Cheng

Jun. 1974

ARC-10755

To measure spectrum, magnitude, and time-average value of turbulent shear stress in flow of gas use small, hollow sphere suspended in flow to measure drag fluctuations in two 90 deg-directions as function of time.

B74-10081**COBALT BASE SUPERALLOY HAS OUTSTANDING PROPERTIES UP TO 1478 K (2200 F)**

R. A. Harlow (Philco-Ford Corp.), F. H. Harf, and J. C. Freche

Aug. 1974 See also NASA-CR-121189; NASA-CR-72726

LEWIS-12089

Alloy VM-103 is especially promising for use in applications requiring short time exposure to very high temperatures. Its properties over broad range of temperatures are superior to those of comparable commercial wrought cobalt-base superalloys, L-605 and HS-188.

B74-10094**VIEWGRAPH PREPARATION MADE EASIER**

H. W. Broskie, E. E. Burcher, F. K. Gough, Jr., S. J. Katzberg, and H. B. Pate, Jr.

Aug. 1974

LANGLEY-11612

Rolls of color-reversal film permit exposure of over 200 viewgraphs on one film loading. Time is saved in film development as roll film lends itself readily to automatic processing.

B74-10101**SHORT-RANGE LASER OBSTACLE DETECTOR**

W. L. Kuriger

Aug. 1974

NPO-11856

Detector, designed for slow-moving vehicle to explore surface of Mars, will automatically divert vehicle from obstacles as small as 0.5 m in its path. Detector comprises injection laser operating in pulse time-delay measurement, or radar, mode. It is capable of scanning area extending from few meters to approximately 30 m.

B74-10102**LASER-SCANNING TECHNIQUES FOR RAPID BALLISTICS IDENTIFICATION**

R. C. Woodbury and R. B. Nakich (Time Zero Corp.)

Aug. 1974

NPO-11861

Two different laser-scanning methods may be utilized. In

each case scanned cylindrical bullet surface is displayed "unwrap-ped" on oscilloscope screen. Bullets are compared by photographing each display and superimposing negatives of two images. With some modifications bullets can be scanned and compared by superimposing images on screen of dual-beam oscilloscope.

B74-10108**IMPROVED DISPENSING TARGETS FOR ION BEAM PARTICLE GENERATORS**

C. G. Miller

Aug. 1974

NPO-13112

Beam impinges on palladium-silver tube, which is target, and heats impinged surface causing local hot spot. Contained gas diffuses through hot spot to meet incoming beam and produce desired particles. When beam is turned off, target spot cools and stops dispensing contained gas.

B74-10116**ANALYSIS OF ORBITAL HEAT TRANSFER**

T. Buna (Martin Marietta Corp.)

Aug. 1974

ARC-10844

Graphical representation of orbital heat balance in form of polar diagrams is obtained from integral expressions of orbital heat transfer whereby quantities of heat are represented as areas swept by "thermal radii."

B74-10117**VALVE DEGRADATION DETECTOR**

N. H. Doshi (TRW Systems Group, TRW, Inc.)

Aug. 1974

ARC-10850

To determine corrosive degradation of valve while it is in service, detect changes in surface roughness or presence of corrosive layers at junction of poppet and seat by measuring temperature gradients created across junction by small heat source.

B74-10118**SURFACE ROUGHNESS MEASURED BY OPTICAL SIGNATURES**

R. J. Salvinski (TRW Systems Group, TRW, Inc.) and T. V. Roszhart (TRW Systems Group, TRW, Inc.)

Aug. 1974

ARC-10853

To measure roughness of metal surfaces by nondestructive means direct laser beam at surface and record distribution pattern of intensity of reflected light to obtain optical signature for comparison with calibrated surface. Signature of machined surface with scratch compared to that of regularly-patterned machined surface may also detect imperfections.

B74-10134**WAVELENGTH-SELECTIVE, SEQUENTIAL Q-SWITCHING LASER CAVITY**

F. Allario and R. A. Lucht

Sep. 1974

LANGLEY-11045

Single-frequency continuous output of laser is converted into series of high-power laser pulses at high repetition rates. Applications include pollutant detection by absorption, laser gain measurements at discrete wavelengths, laser propagation measurement, and laser plasma diagnostics.

B74-10136**GRAPHITE IONIZATION VACUUM GAUGE**

G. A. Beitel (Midwest Res. Inst.) and D. K. Benson (Midwest Res. Inst.)

Sep. 1974 See also NASA-CR-2101

LANGLEY-11338

Triode gauge with electron source, electron collector, and positive ion collector made from either graphite or carbon material extends low-pressure ranges of existing gauges by changing only materials used in construction. Advantages of graphite gauge stem from physical properties of graphite (or carbon).

**B74-10139
OPTICAL DISCRIMINATOR SYSTEM**

D. B. Robelen

Sep. 1974

LANGLEY-11580

System includes lightweight, inexpensive movie camera to record simultaneously views from three different angles on same filmstrip. This is noncritical system as it is adaptable to many applications requiring similar, but diverse, viewing areas.

**B74-10143
RADIO-CONTROLLED, SOUND-OPERATED SWITCH**

T. D. Bryant and D. W. Soloman, Jr.

Sep. 1974

LANGLEY-11641

Switch presently provides remote control switching, by radio signals, or pollution sampling devices. Can be used for remote weather station interrogation, firing of pyrotechnics, control of dangerous equipment, or control of device in location where it is impractical to run metallic conductors because of time limitations, distance, or terrain.

**B74-10149
REMOTE SUNFALL MONITOR: A CONCEPT**

R. B. Lollar (IBM) and R. R. Mandt (IBM)

Sep. 1974

M-FS-22943

Monitor is proposed as spectral monitor system designed to record digital data simultaneously from two types of sensors, mounted on both stationary assembly and tracking assembly. Both direct and total values of solar radiation are recorded. System may measure solar energy collector efficiencies for three main conversion technologies.

**B74-10152
AUTOMATIC MARKER FOR PHOTOGRAPHIC FILM**

N. M. Gabbard and W. M. Surrency

Sep. 1974

MSC-14705

Commercially-produced wire-marking machine is modified to title or mark film rolls automatically. Machine is used with film drive mechanism which is powered with variable-speed, 28-volt dc motor. Up to 40 frames per minute can be marked, reducing time and cost of process.

**B74-10161
ELECTROSTATICALLY CONTROLLED HEAT SHUTTER**

L. J. Derr

Sep. 1974

NPO-11942

Electrically controlled chamber filled with inert gas efficiently removes heat from heat-generating components. System can be reversed to bring heat from external source to component.

**B74-10166
LASER-ACTUATED MECHANICAL DEVICE**

A. J. Murphy and L. C. Yang

Sep. 1974

NPO-13105

Actuator is portable and can be used in high-temperature (over 500 C) environments by incorporating tungsten metal film and quartz window. Actuator can be triggered when it is not directly in laser beam path by utilizing fiber optics. It is advantageous for remotely switching ultra-high voltage systems.

**B74-10167
IMPROVED CONTROL FOR NUCLEAR/THERMIONIC POWER SOURCE: A CONCEPT**

C. D. Sawyer

Sep. 1974

NPO-13114

Variable-gain power regulator is used to maintain constant load voltage. There are two feedback loops. One is tied directly with regulator to feed error voltage, which is sum of reference and load voltages. Second loop is tied with reactor, where output current of thermionic fuel elements is fed back to signal generator.

**B74-10168
METHOD FOR REMOTELY SENSING TURBULENCE OF PLANETARY ATMOSPHERES**

R. T. Woo and A. Ishimaru

Sep. 1974

NPO-13154

Based on variances of log-amplitude and phase fluctuations of radio occultation data received from orbital and fly-by missions, structure constant for Venusian planetary atmosphere has been estimated with high-confidence factor. Analysis indicates that effects of inhomogeneity, finite size, and superrefractivity of atmospheric turbulence cannot be ignored.

**B74-10173
THROTTLEABLE HEAT PIPE**

B. D. Marcus (TRW Systems Group, TRW, Inc.)

Sep. 1974

ARC-10848

Variable thermal conductance is provided by throttling or interrupting vapor flow between evaporator and condenser sections of heat pipe. Potential advantage of throttling technique is that no bulky gas reservoirs are required. Entire condenser is maintained at nearly uniform temperature so there is better thermal interface with surrounding equipment.

**B74-10181
SPECTROMETER**

D. H. Menzel (Geophysics Corp. of Am.)

Nov. 1974

GSFC-11694

Ultraviolet spectrometer measures pure monochromatic wavelengths in predetermined narrow wave bands. Two stages are incorporated: stationary dispersed beam is intercepted by array of slits cut into plate at discrete wavelength locations; second stage is inverted spectrometer which recombines dispersed spectrum at single exit slit.

**B74-10182
DYNAMIC POLARIZATION COMPENSATING SYSTEM FOR OPTICAL COMMUNICATIONS RECEIVER**

M. W. Fitzmaurice and J. B. Abshire

Nov. 1974

GSFC-11782

Electro-optic cell is located in optical path of input light beam. Cell includes crystal for controlling phase between two polarization states. Cell axes are rotated 45 deg to receiver axes defined by vertical and horizontal polarization states. Voltage across cell compensates for bias by introducing different phase retardation along crystal axes.

**B74-10184
CALORIMETRIC DETECTION OF NEUTRAL-ATOM CONTENT OF ION BEAM**

A. S. Roberts, Jr. (Old Dominion Univ.)

Nov. 1974

LANGLEY-11505

Energy deposition technique deduces neutral-beam flux or dose from measured values of incremental resistance increases in platinum wire passed through beam. Steady-state heat balance analysis led to equivalent neutral-beam current. Method was used to detect neutral-atom content of 60-keV argon ion beam.

**B74-10187
FLIGHT TESTS OF VORTEX-ATTENUATING SPLINES**

J. C. Patterson, Jr.

Nov. 1974

LANGLEY-11645

Visual data on formation and motion of lift-induced wingtip vortex were obtained by stationary, airflow visualization method. Visual data indicated that vortex cannot be eliminated by merely reshaping wingtip. Configuration change will likely have only small effect on far-field flow.

**B74-10194
LASER SYSTEM TO DETONATE EXPLOSIVE DEVICES**

V. J. Menichelli and L. C. Yang

Nov. 1974
NPO-11743

Detonating system is not affected by electromagnetic interference. System includes laser source, Q-switch, and optical fiber connected to explosive device. Fiber can be branched out and connected to several devices for simultaneous detonation.

B74-10195
IMPROVED XENON LAMP FOR SOLAR SIMULATORS: A CONCEPT
 L. F. Schmidt
 Nov. 1974
NPO-13128

Short-arc xenon lamp proposes to produce more uniform solar output. With this lamp, both axes of sensors can be tested with same setup. Lamp includes cathode with conical tip and annular anode. Annulus is supported by angled projection to avoid interference with passage of light generated by arc.

B74-10200
DIGITAL MULTICHANNEL PHOTOMETER
 E. A. Beaver (Univ. of Ca.) and C. E. McIlwain (Univ. of Ca.)
 Nov. 1974
HQ-10791

System was developed for use in astronomy and other research areas concerned with detection of faint-light images. Photometer system is comparable in performance to good photomultiplier tube array except that digital electronics are used instead of analog.

B74-10202
IGNITION OF SOUNDING ROCKET MOTORS WITH HAND-PUMPED AIR
 E. L. Rakowsky (Singer Co.) and V. P. Marchese (Singer Co.)
 Nov. 1974 See also NASA-CR-2418
LANGLEY-11152

Method demonstrates inexpensive, safe, and foolproof concept for solid propellant rocket motors, using simple handpump to deliver air. Fluoric ignition was accomplished using system without stored energy and with complete absence of electrical energy and wiring.

B74-10211
FLUID DYNAMICS TEST METHOD
 W. H. Gayman
 Nov. 1974
NPO-11895

Test method and apparatus determine fluid effective mass and damping in frequency range where effective mass may be considered as total mass less sum of slosh masses. Apparatus is designed so test tank and its mounting yoke are supported from structural test wall by series of flexures.

B74-10212
ULTRASONIC SCANNER FOR FOOTPRINT IDENTIFICATION
 L. J. Derr
 Nov. 1974
NPO-13055

Scanner includes transducer, acoustical drive, acoustical receiver, X and Y position indicators, and cathode-ray tube. Transducer sends ultrasonic pulses into shoe sole or shoeprint. Reflected signals are picked up by acoustic receiver and fed to cathode-ray tube. Resulting display intensity is directly proportional to reflected signal magnitude.

B74-10216
HEAT PIPE WITH HOT GAS RESERVOIR
 B. D. Marcus (TRW Systems Group, TRW, Inc.)
 Nov. 1974 See also NASA-CR-114530
ARC-10847

Heat pipe can reverse itself with gas reservoir acting as evaporator, leading to rapid recovery from liquid in reservoir. Single layer of fine-mesh screen is included inside reservoir to assure uniform liquid distribution over hottest parts of internal surface until liquid is completely removed.

B74-10217
SYSTEM FOR MEASURING TRANSIENTS IN FLUID FLOW
 D. J. Pearson (TRW Systems Group, TRW Inc.)
 Nov. 1974
ARC-10852

When test valve is actuated, piston is moved by pressurized fluid, and displacement is monitored by electro-optical tracking system and recorded by oscilloscope camera. Electro-optical monitor produces output voltage proportional to displacement of piston.

B74-10223
FIELD-SEQUENTIAL STEREO TELEVISION
 W. E. Perry
 Nov. 1974
MSC-12616

System includes viewing devices that provide low interference to normal vision. It provides stereo display observable from broader area. Left and right video cameras are focused on object. Output signals from cameras are time provided by each camera. Multiplexed signal, fed to standard television monitor, displays left and right images of object.

B74-10224
INSPECTION OF TRANSPARENT SURFACES USING PHOTSENSITIVE PAPER
 F. R. Minton and U. O. Graham
 Nov. 1974
MSC-19442

Window surface is laid flat on top of photosensitive paper. Opposite side of glass is covered by black cloth. Window edges are then illuminated by light flash through fiber optics. Exposed paper is processed and inspected. Paper shows scratches, bubbles, dust particles, and fingerprints on glass surface.

B74-10229
COAXIAL ANODE IMPROVES SENSITIVITY OF GAS RADIATION COUNTERS
 W. L. Kraushaar (Univ. of Wisc.)
 Dec. 1974 See also B73-10282
GSFC-11492

Anode wire itself is enclosed by three segments. Two on ends are rejector segments, and middle one is primary charge-detecting segment. Anode wire is made from tungsten and is surrounded by enamel insulation. Enamel is covered by segments of vapor-deposited gold. At one point in center segment, gold layer makes direct contact with anode wire.

B74-10230
PARTICLE IMPACT LOCATION DETECTOR
 S. O. Auer
 Dec. 1974 See also B73-10282
GSFC-11829

Detector includes delay lines connected to each detector surface strip. When several particles strike different strips simultaneously, pulses generated by each strip are time delayed by certain intervals. Delay time for each strip is known. By observing time delay in pulse, it is possible to locate strip that is struck by particle.

B74-10232
COMPACT SOURCE OF SOFT X-RAYS
 P. Gorenstein (Am. Sci. and Eng., Inc.) and B. Harris (Am. Sci. and Eng., Inc.)
 Dec. 1974
HQ-10732

Sources of soft X-rays uses alpha particles to fluoresce light elements such as boron, carbon, and magnesium. X-ray wavelengths are varied by changing target. Technique supplies broad range of monoenergetic X-rays whose energy can be adjusted very easily.

B74-10243
IMPROVED NONDISPERSIVE INFRARED ANALYZER
 J. Dimeff
 Dec. 1974 See also B72-10198

03 PHYSICAL SCIENCES

ARC-10802

Light from radiant energy source passes through filter, sample, and reference gas chambers to detector. Chamber with amount of gas to be measured is sealed. Filter may be gelatinous, interference, dispersive, or negative-gas, as required.

B74-10246

COMBINED EFFECTS OF A CONVERGING BEAM OF LIGHT AND MIRROR MISALIGNMENT IN MICHELSON INTERFEROMETRY

L. W. Kunz and D. Goorvitch

Dec. 1974

ARC-10889

Expressions have been derived and calculations have been made which show that combined effects lead to asymmetric interferograms and reduction in power at zero path difference. Criteria are given for estimating maximum allowable mirror misalignment.

B74-10254

IMPROVED MAGNETIC SUSPENSION TECHNIQUE

P. A. Studer

Jan. 1975

GSFC-11079

Technique combines electromagnetic coil with polarized permanent magnets. This reduces power consumption of electromagnetic units and improves response of magnetic suspension systems, by increasing their sensitivity to changes in current controlling electromagnet.

B74-10261

NOISE SUPPRESSOR

W. E. Zorunski

Jan. 1975 See also NASA-TR-R-419

LANGLEY-11141

Suppressor reduces noise propagated through ducts. It provides high attenuation in given duct length. Entire device forms acoustic trap which utilizes reflective elements on ends to direct sound energy into sound-dissipating element in center. Device achieves large suppression by utilizing interactive effects of different suppression devices.

B74-10271

VOLUME MEASURING SYSTEM

J. S. Oele (Lockheed Missiles and Space Co.)

Jan. 1975

MSC-13972

Chamber is designed to be airtight; it includes face mask for person to breathe outside air so that he does not disturb chamber environment. Chamber includes piston to vary air volume inside. Also included are two microphone transducers which record pressure information inside chamber.

B74-10275

IMPROVED CHANNEL MULTIPLIER FOR RADIATION-AND-PARTICLE DETECTORS

K. C. Schmidt (Bendix Corp.)

Jan. 1975

NPO-12128

Multiplier is formed of glass and includes cylindrically-shaped main channel element having length-to-diameter ratio of 50 to 1. Element has open slot along its length. Attached to slot edges are two glass plates set at an angle to each other. Inside surfaces are coated with secondary electron emissive coating.

B74-10291

FLAT DEVICE FOR HEAT CONCENTRATION OR DISPERSION

R. V. Jenkins and A. P. Sabol

Feb. 1975

LANGLEY-11699

Device provides low-cost unit for efficiently transferring heat between, either to or from, flat surface and central point or region. It is based upon vapor heat transfer principle and therefore, extends applicability of heat pipe.

B74-10293

ACOUSTIC-OPTIC DEFLECTOR TELESCOPE

W. C. Stewart (RCA)

Feb. 1975

M-FS-23107

In construction of page-organized holographic memories, it is necessary to provide collimated laser beam which can be deflected parallel to itself. This is used for selecting stored holograms from two-dimensional array. Three-lens system significantly reduces optical path length.

B74-10301

THERMOELASTIC ANALYSIS OF SOLAR CELL ARRAYS AND THEIR MATERIAL PROPERTIES

M. A. Salama, W. J. Rowe, and R. K. Yasui

Feb. 1975 See also NASA-CR-135713

NPO-13458

Announced report discusses experimental test program in which five different solar cell array designs were evaluated by subjecting them to 60 thermal cycles from minus 190 deg to 0.0 deg. Results indicate that solder-coated cells combined with Kovar n-interconnectors and p-interconnectors are more durable under thermal loading than other configurations.

04 MATERIALS/CHEMISTRY

B74-10002

A NEW NICKEL-BASE WROUGHT SUPERALLOY FOR APPLICATIONS UP TO 1033 K (1400 F)

W. B. Kent (Universal-Cyclops Corp.), H. L. Black (Universal-Cyclops Corp.), F. H. Harf, and S. G. Young

Mar. 1974 See also B74-10003; NASA-CR-120934

LEWIS-11827

Alloy was melted from high purity raw materials and cast ingots extruded at 1422 K. Material was hot rolled to 0.013 m diameter bar stock. Partial solution heat-treatment followed by aging produced structure of fine gamma prime precipitate reinforcing gamma matrix containing coarser blocky gamma prime particles. Alloy can be processed by powder metallurgy.

B74-10003

NEW NICKEL-BASE WROUGHT SUPERALLOY WITH APPLICATIONS UP TO 1253 K (1800 F)

W. B. Kent (Universal-Cyclops Corp.), H. L. Black (Universal-Cyclops Corp.), R. V. Miner, Jr., F. H. Harf, and S. G. Young

Mar. 1974 See also B74-10002; NASA-CR-120934

LEWIS-11828

Alloy possesses combination of high tensile strength at low and intermediate temperatures to 1033 K with good rupture strength at high temperatures to 1255 K. Alloy has promise for turbine disk application in future gas turbine engines and for wrought integrally bladed turbine wheel; thickness and weight of disk portion of wheel could be reduced.

B74-10005

CRITERIA FOR SELECTING RESIN MATRICES FOR IMPROVED COMPOSITE STRENGTH

C. C. Chamis, M. P. Hanson, and T. T. Serafini

Mar. 1974 See also NASA-TM-X-68166

LEWIS-12057

Area under matrix of typical stress-strain diagram bounded by one percent strain is good index for priority assessment of matrix contribution to composite strength. Initial tangent modulus to stress-strain curve is useful parameter in translating matrix properties to composite properties.

B74-10007

ADDITION OF SILICON IMPROVES OXIDATION RESISTANCE OF NICKEL BASED SUPERALLOYS

C. E. Lowell and R. V. Miner, Jr.

Mar. 1974 See also NASA-TM-X-68191; NASA-TN-D-6838
LEWIS-12138

Specific weight changes of nickel-base superalloy B-1900 and B-1900 + 1% Si specimens were tested at 1273 K. B-1900 was losing weight at an increasing rate due to spalling of oxide scale while B-1900 + 1% Si was still gaining weight at low, nearly constant rate. Similar comparison in weight change was observed for specimens tested at 1373 K.

B74-10011
CASTING COPPER TO TUNGSTEN FOR HIGH-POWER ARC LAMP CATHODES

H. A. Will
Apr. 1974 See also NASA-TM-X-2865
LEWIS-12169

Voids forming at interface when copper is cast onto tungsten can be eliminated by adding wetting agent during casting process. Small amount of copper and nickel are cast onto thoriated tungsten insert, insert is recast with more copper to form electrode. Good thermal conductance results in long-lived cathode.

B74-10016
PLASMA-SPRAYED METAL-GLASS FLUORIDE COATINGS FOR LUBRICATION TO 1170 K (1650 F)

H. E. Sliney
Jun. 1974 See also NASA-TN-D-7556
LEWIS-11930

Plasma spray of Nichrome matrix composite contains dispersed glass for oxidation protection and calcium fluoride for lubrication. Coatings can be applied to bearing journals and bearing bores. Coating was easily machinable and had excellent bond strength on substrate metal.

B74-10017
IMPROVED EPITAXIAL PROCESS FOR FABRICATING SILICON CARBIDE SEMICONDUCTOR DEVICES

H. A. Will and J. A. Powell
Jun. 1974 See also NASA-TN-D-7558
LEWIS-12094

Process of growing epitaxial silicon carbide (SiC) layers on SiC substrates so that epitaxial growth is perpendicular to c-axis by chemical vapor deposition process at temperatures of 1590 to 1660 K minimizes variations in stacking sequence and problems associated with high temperatures.

B74-10027
GLASS FIBER ADDITION STRENGTHENS LOW-DENSITY ABLATIVE COMPOSITIONS

H. H. Chandler (Martin Marietta Corp.)
Apr. 1974
LANGLEY-11288

Approximately 15% of E-glass fibers was added to compositions under test and greatly improved char stability. Use of these fibers also reduced thermal strains which, in turn, minimized char shrinkage and associated cracks, subsurface voids, and disbands. Increased strength allows honeycomb core reinforcement to be replaced by equivalent amount of glass fibers.

B74-10032
METHODS FOR IMPROVED RESOLUTION OF FLOW ELECTROPHORESIS CELLS

L. R. McCreight (GE) and G. L. Fogal (GE)
May 1974
M-FS-22223

First method involves remote adjusting of zeta potential. Second approach sandwiches two conducting metal plates between opposite cell walls and thin insulating layer. Third method forces buffer to flow in direction opposite particle streams.

B74-10036
COMBUSTION PRODUCTS GENERATING AND METERING DEVICE

R. E. Wiberg and J. A. Klisch
Jul. 1974
GSFC-11095

Device simulates incipient fire conditions in closely-controlled

adjustable manner, to give predetermined degree of intensity at selected locations throughout area, and to verify that detection system will respond. Device can be used with and for cross calibration and experimentation in conjunction with commercially available products of combustion analyzing meters.

B74-10052
ECONOMICAL TECHNIQUE FOR FRAGMENTATION TESTING

T. H. Smith, III (TRW Systems Group, TRW, Inc.) and B. A. Snoke (TRW Systems Group, TRW, Inc.)
May 1974
ARC-10792

Automatic rifle was modified for remote, single-shot use. To simulate statistically-determined fragment size from rocket-motor casing blunt-nosed bullet was made of same alloy. Cartridge was loaded with enough powder to make bullet reach target at same estimated velocity as shrapnel from rocket casing.

B74-10053
SILVER OXIDE SORBENT FOR CARBON DIOXIDE

G. V. Colombo (McDonnell-Douglas Corp.)
May 1974 See also NASA-CR-114632
ARC-10797

Material can be regenerated at least 20 times by heating at 250 C. Sorbent is compatible with environment of high humidity; up to 20% by weight of carbon dioxide can be absorbed. Material is prepared from silver carbonate, potassium hydroxide or carbonate, and sodium silicate.

B74-10057
ENZYMATIC REGENERATION OF ADENOSINE TRIPHOSPHATE COFACTOR

D. L. Marshall (Battelle Mem. Inst.-Columbus Labs.)
May 1974
ARC-10837

Regenerating adenosine triphosphate (ATP) from adenosine diphosphate (ADP) by enzymatic process which utilizes carbamyl phosphate as phosphoryl donor is technique used to regenerate expensive cofactors. Process allows complex enzymatic reactions to be considered as candidates for large-scale continuous processes.

B74-10073
CUSHION MODULE FOR STOWING ELECTRONIC EQUIPMENT

J. R. Rogers and R. M. Elam, Jr.
Jun. 1974
ARC-10779

To provide vibration-resistance composition adjust processing techniques, which produces essentially void-free materials and provides for clean removal of finished material from mold. Microsphere filler imparts strength to polymer and sodium carbonate imparts flame-resistance.

B74-10074
VOLUME-REFLECTING DIELECTRIC HEAT SHIELD

P. R. Nachtsheim, D. L. Peterson, and J. T. Howe
Jun. 1974
ARC-10803

White, volume-reflecting dielectric material absorbs essentially none of the incident radiant energy, and continues to reflect even though in severe environment its surface is melted and is being vaporized. Process of overall reflectance in dielectric material, involving internal refractions and reflections, is similar to process of reflection in paints.

B74-10077
NEW POLYMER SYSTEMS: CHAIN EXTENSION BY DIANHYDRIDES

R. A. Rhein and J. D. Ingham
Jul. 1974
NPO-13046

Three anhydrides provide effective chain extension of hydroxy-terminated polyalkylene oxides and polybutadienes. Novel feature of these anhydride reactants is that they are difunctional

04 MATERIALS/CHEMISTRY

as anhydrides, but they are tetrafunctional if conditions are selected that lead to total esterification or reaction of all carboxyl groups.

B74-10082

HIGH STRENGTH NICKEL BASE ALLOY, WAZ-16, FOR APPLICATIONS UP TO 2200 F

W. J. Waters and J. C. Freche
Aug. 1974 See also NASA-TN-D-7648

LEWIS-12270

Alloy product is high strength, high temperature nickel base material with higher incipient melting temperature than all known nickel base alloys. It is microstructurally stable and has high impact resistance both before and after prolonged thermal exposure. It contains relatively few alloying constituents and low content of expensive and rare metals.

B74-10085

RAPID METHOD FOR DETERMINING NITROGEN IN TANTALUM AND NIOBIUM ALLOYS

E. J. Merkle, J. W. Graab, and W. F. Davis
Sep. 1974 See also NASA-TM-X-3067

LEWIS-12237

Adaptation of commercial instrument which measures nitrogen and oxygen in steel gave results in less than four minutes. Sample is heated in helium atmosphere in single-use graphite crucible. Platinum flux facilitates melting of sample. Released gases are separated chromatographically and measured in thermal-conductivity cell.

B74-10095

DETECTION OF CRACKS IN SURFACE INSULATION

L. J. Leger
Aug. 1974

MSC-14187

Volatile organic liquid surface penetrants used with appropriate detector paper leave tested surfaces uncontaminated. Method can be used to detect minute cracks in materials such as metal, glass, plastics, ceramics, etc.

B74-10096

IN-PROCESS OXIDATION PROTECTION IN FLUXLESS BRAZING OR DIFFUSION BONDING OF ALUMINUM ALLOYS

K. P. O'Kelly (LTV Aerospace Corp.) and A. B. Featherston (LTV Aerospace Corp.)
Aug. 1974 See also NASA-CR-128805

MSC-14435

Aluminum is cleaned of its oxide coating and is sealed immediately with polymeric material which makes it suitable for fluxless brazing or diffusion bonding. Time involved between cleaning and brazing is no longer critical factor.

B74-10111

ACCURATE THICKNESS MEASUREMENT OF EASILY COMPRESSED MATERIALS

L. W. Carlson (Rocketdyne/N. Am. Rockwell Corp.)
Aug. 1974

ARC-10551

Sheet of material is placed between two thin, uniform, and flat sheets of glass of known thickness; light pressure is applied by means of weights. Micrometer aids thickness measurement of sandwich. Thickness of two sheets of glass is then subtracted.

B74-10121

COMMERCIALLY AVAILABLE BLACK CHROME IS AN EFFECTIVE SOLAR COLLECTOR COATING

G. E. McDonald
Sep. 1974 See also NASA-TM-X-71596

LEWIS-12159

Black chrome, electroplated decorative finish, which absorbs and retains solar energy is readily available, easily applied, and low cost. It is indistinguishable from black nickel and is equally feasible on aluminum or steel.

B74-10122

GUIDEBOOK OF NONDESTRUCTIVE EVALUATION

TECHNIQUES FOR MATERIALS AND STRUCTURES

A. Vary

Nov. 1974 See also NASA-SP-3079

LEWIS-12272

Seventy nondestructive techniques for evaluating material and structures are described in guidebook. Standardized format facilitates comparison of their merits and limitations for solving various problems. Guide includes index of flaw types and tabulated guide to use of nondestructive evaluation techniques. Alternative technique names are cross-referenced.

B74-10124

FABRICATION OF COMPLEX STRUCTURES OR ASSEMBLIES BY HOT ISOSTATIC PRESSURE (HIP) WELDING

A. N. Ashurst (Battelle Mem. Inst.), M. Goldstein (Battelle Mem. Inst.), M. J. Ryan (Battelle Mem. Inst.), G. G. Lessmann (Westinghouse Astronuc. Lab.), and W. A. Bryant (Westinghouse Astronuc. Lab.)

Nov. 1974 See also NASA-CR-120923; NASA-CR-72795

LEWIS-11490

HIP welding is effective method for fabricating complex structures or assemblies such as alternator rotors, regeneratively-cooled rocket-motor thrust chambers, and jet engine turbine blades. It can be applied to fabrication of many assemblies which require that component parts be welded together along complex interfaces.

B74-10132

SOFT, THERMALLY CONDUCTIVE MATERIAL

A. J. Anderson (Martin Marietta Corp.)
Sep. 1974

LANGLEY-10850

Silicon rubber filled with high percentage of silver-plated copper microspheres provides soft, thermally conductive seat for thermal switch. Material also could be used in thin sheet form to prevent corrosion between dissimilar metals while maintaining good thermal communication. It could be used as thermal gasketing.

B74-10133

TWO-PHASE, PASSIVE SEPARATOR-AND-FILTER ASSEMBLY

A. C. Erickson (GE) and F. J. Porter, Jr. (GE)
Sep. 1974

LANGLEY-10976

Assembly separates liquid from gas by passive hydrophilic/hydrophobic material approach. Apparatus is comprised of porous glass hydrophilic tubes. Quantity, lateral size, and pore size of glass tubes are determined by particular design requirements with regard to water rate, water quality contamination level, application endurance life, and operating differential pressure level.

B74-10154

POLYMER COMPOSITIONS SUITABLE FOR USE IN ENRICHED OXYGEN ATMOSPHERES

E. C. Schule (Allied Chem. Corp.), P. P. Salatiello (Allied Chem. Corp.), and S. Chandrasekaran (Allied Chem. Corp.)
Sep. 1974 See also NASA-CR-134062

MSC-14618

Three organic polymer systems are based on copolymer of chlorotrifluoroethylene, ethylene, and tin-based flame retardants. Fourth system is copolymer of chlorotrifluoroethylene and tetrafluoroethylene. This system contains no stabilizers of flame retardant additives.

B74-10157

FLAME RESISTANT ELASTIC ELASTOMERIC FIBER

J. T. Howarth (Little/Arthur D./Inc.), S. Sheth (Little/Arthur D./Inc.), A. A. Massucco (Little/Arthur D./Inc.), and K. R. Sidman (Little/Arthur D./Inc.)

Sep. 1974 See also NASA-CR-128505

MSC-14331

Compositions exhibit elastomeric properties and possess various degrees of flame resistance. First material polyurethane, incorporates halogen containing polyol and is flame resistant in air; second contains spandex elastomer with flame retardant

additives; and third material is prepared from fluorelastomer composition of copolymer of vinylidene fluoride and hexafluoropropylene.

B74-10159
POLYELECTROLYTES WITH HIGH CHARGE DENSITY

A. Rembaum and S.-P. S. Yen

Sep. 1974

NPO-11918

Polymers can be used as flocculants to clarify residential and industrial water supplies and as bactericidal and fungicidal agents. They can be used in preparation of electroconductive photocopy papers, to improve living cell adhesion to glass or plastic, and as anticancer agents.

B74-10175
SEMI-PERMANENT SEALING OF LEAKS IN HIGH VACUUM SYSTEMS

J. D. Christian and W. P. Gilbreath

Sep. 1974

ARC-10881

Silicone-rubber adhesive is applied externally to seal hair-line cracks in sections of high vacuum system while system is partially evacuated. No pretreatment of surface is required since adhesive will be drawn into crack while diffusion or ion pump is off.

B74-10177
DOMESTIC WASH WATER RECLAMATION

J. B. Hall, Jr., C. E. Batten, and J. R. Wilkins

Oct. 1974 See also NASA-TN-D-7600

LANGLEY-11606

System consists of filtration unit, reverse-osmosis module, tanks, pumps, plumbing, and various gauges, meters, and valves. After water is used in washing machine or shower, it is collected in holding tank. Water is pumped through series of five particulate filters. Pressure tank supplies processed water to commode water closet.

B74-10201
APPARATUS FOR MONITORING LINEAR EXPLOSIVE PERFORMANCE

L. J. Bement

Nov. 1974

LANGLEY-10800

Techniques provide performance monitoring standard for acceptance, lot qualification, and comparison testing of devices. Exhibit high degree of simplicity, accuracy, and reproducibility. Apparatus simultaneously measures explosive pressure stimulus energy, explosive cutting, or rupturing, ability, and detonation propagation rate.

B74-10208
VISUALIZATION OF SMOKE STACK PLUME

R. J. Exton

Nov. 1974

LANGLEY-11675

System consists of ultraviolet vidicon tube, interference and color filters, ultraviolet telephoto lens, monitor, and waveform analyzer to extract information from video scene, stack plume viewed against sky. System will view SO₂ and any other element which absorbs light at wavelength used.

B74-10218
METALLIZED POLYMERIC FOAM MATERIAL

B. A. Birnbaum (Hughes Aircraft Co.) and N. Bilow (Hughes Aircraft Co.)

Nov. 1974

ARC-10860

Open-celled polyurethane foams can be coated uniformly with thin film of metal by vapor deposition of aluminum or by sensitization of foam followed by electroless deposition of nickel or copper. Foam can be further processed to increase thickness of metal overcoat to impart rigidity or to provide inert surface with only modest increase in weight.

B74-10219

MOISTURE-RESISTANT BAFFLE MATERIAL FOR FUEL TANKS

N. Bilow (Hughes Aircraft Co.)

Nov. 1974

ARC-10861

Test results indicated superiority of certain polyether-based polyurethanes as protective coatings and suggested that baffle-materials with one of these coatings should have useful life approximately twice that of uncoated foams now in use.

B74-10222
EVALUATION OF TEST PROCEDURES FOR HYDROGEN ENVIRONMENT EMBRITTLEMENT

H. G. Nelson

Nov. 1974

ARC-10919

Report presents discussion of three common and primary influences on embrittlement process. Application of theoretical considerations to design of test coupons and methods is illustrated for both internal and external hydrogen embrittlement. Acceptable designs and methods are indicated.

B74-10244
HIGH-TEMPERATURE TENSILE TESTER FOR CERAMICS

M. Smith

Dec. 1974

ARC-10822

Apparatus measures tensile strength of rigid, low-density ceramic materials at temperatures up to 1375 K. Tensile grips mate with tensile specimen and form top and bottom of lightweight furnace. Apparatus can only be used with rigid materials and grips must be stronger than material under test.

B74-10247
ADVANCED FIBER-COMPOSITE HYBRIDS--A NEW STRUCTURAL MATERIAL

C. C. Chamis, R. F. Lark, and T. L. Sullivan

Dec. 1974 See also NASA-TM-X-71580

LEWIS-12118

Introduction of metal foil as part of matrix and fiber composite, or "sandwich", improves strength and stiffness for multidirectional loading, improves resistance to cyclic loading, and improves impact and erosion resistance of resultant fiber-composite hybrid structure.

B74-10248
ADVANCED TUNGSTEN FIBER-REINFORCED NICKEL SUPERALLOY

D. W. Petrusek and R. A. Signorelli

Dec. 1974 See also B66-10551; B73-10003; NASA-CR-120925; NASA-TN-D-6881; NASA-TN-D-7773

LEWIS-12394

Matrix composition, fabrication technique, and fiber diameter were selected to minimize fiber-matrix reaction and preserve composite strength. Composites may be used in place of superalloys where higher strength or greater strength-to-density ratios are advantageous, and will permit higher operating temperatures in particular applications.

B74-10264
CONTROLLED INTERMITTENT INTERFACIAL BOND CONCEPT FOR COMPOSITE MATERIALS

T. U. Marston (Univ. of Mich.) and A. G. Atkins (Univ. of Mich.)

Jan. 1975

LANGLEY-11628

Concept will enhance fracture resistance of high-strength filamentary composite without degrading its tensile strength or elastic modulus. Concept provides more economical composite systems, tailored for specific applications, and composite materials with mechanical properties, such as tensile strength, fracture strain, and fracture toughness, that can be optimized.

B74-10265
HIGH-STRENGTH ALLOY WITH RESISTANCE TO HYDROGEN-ENVIRONMENT EMBRITTLEMENT

04 MATERIALS/CHEMISTRY

T. G. McNamara (Rockwell Intern. Corp.)

Jan. 1975

M-FS-19234

Alloy is precipitation-hardened, high-strength, and low-thermal-expansion materials. It is iron-based and contains nickel and chromium at lower levels than high-strength alloys. It is readily welded and brazed and has good oxidation resistance. Tests indicated there was no reduction of notched or smooth strength.

B74-10268

CARBON MONOXIDE DETECTOR

J. L. Bradspies (Tyco Labs., Inc.), S. B. Brummer (Tyco Labs., Inc.), G. L. Holleck (Tyco Labs., Inc.), and L. L. Nelsen (Tyco Labs., Inc.)

Jan. 1975

M-FS-23090

Electrochemical sensor continuously monitors levels of carbon monoxide in air. Device is based on electrochemical oxidation of carbon monoxide in detector cell. Detector can operate on 115-Vac external power source, 28-Vdc external power source, or for 200 hours on internal 12-V NiCd batteries.

05 LIFE SCIENCES

B74-10029

AUTOMATED MONITORING OF RECOVERED WATER QUALITY

J. E. Misselhorn (Aerojet Med. And Biol. Systems), W. H. Hartung (Aerojet Med. and Biol. Systems), and S. W. Witz (Aerojet Med. and Biol. Systems)

May 1974

LANGLEY-11203

Laboratory prototype water quality monitoring system provides automatic system for online monitoring of chemical, physical, and bacteriological properties of recovered water and for signaling malfunction in water recovery system. Monitor incorporates whenever possible commercially available sensors suitably modified.

B74-10075

PROGRAMMED-PRESSURE AIR SUPPLY FOR POSITIVE-PRESSURE BREATHING SYSTEM

S. J. Troutman, Jr. (Webb Associates) and J. F. Annis (Webb Associates)

Jun. 1974

ARC-10845

Motor-driven cam varies height of mercury column connected to loading diaphragm of pressure-regulating valve. Air supplied to open-loop, positive pressure breathing system is controlled so repetitive pressure-time profiles can be obtained during every insufflation-exhaust cycle.

B74-10080

IMPROVED HIGH VOLUME AIR SAMPLER

R. B. King

Aug. 1974

LEWIS-11644

Sampler permits size separations of particles by directing sampled air through cross-sectional area sufficiently large that air velocity is reduced to point where particles of larger size will settle out. Sampler conducts air downward and through slots around periphery of unit into relatively open interior of house.

B74-10103

COMPACT TELEMETRY PACKAGE FOR REMOTE MONITORING OF NEUTRON RESPONSES IN ANIMALS

C. D. Baker

Aug. 1974

NPO-11887

Battery-powered telemeter includes FM transmitter and is light enough to be mounted on animal's head. Animal has complete freedom of movement while its neuron responses are transmitted to receiver in laboratory. Construction may also be applied to monitor blood pressure, body temperature, and different muscular signals.

B74-10119

THERMISTOR HOLDER FOR SKIN-TEMPERATURE MEASUREMENTS

J. E. Greenleaf and B. A. Williams

Aug. 1974

ARC-10855

Sensing head of thermistor probe is supported in center area of plastic ring which has tabs so that it can be anchored in-place by rubber bands or adhesive tapes. Device attaches probes to human subjects practically, reliably, and without affecting characteristics of skin segment being measured.

B74-10140

THERAPEUTIC HAND-EXERCISING DEVICE WITH CYCLING PRESSURE VALUE

D. E. Barthlome

Sep. 1974

LANGLEY-11579; LANGLEY-11595

Device exercises hands of persons whose fingers are generally straight and need to be flexed inward toward palms of hands. Device is extremely simple in design, which reduces costs, and fits all hand sizes. Patient can instantly free hand from device by pulling flap free from wrist of straps.

B74-10153

IODINE GENERATOR FOR DISINFECTING RECLAIMED WATER

R. A. Wynveen (Life Systems, Inc.), J. D. Powell (Life Systems, Inc.), and F. H. Schubert (Life Systems, Inc.)

Sep. 1974 See also NASA-CR-134219

MSC-14632

System dispenses iodine into water tank automatically in quantities varying from 0.5 to 20 ppm. It stores 180-day supply of iodine crystals, sufficient to support six people consuming water at rate of 4.5 to 13.6 kg per person per day.

B74-10155

INEXPENSIVE LIGHTWEIGHT MIRROR

G. D. Badhwar and L. G. Fehrenkamp

Sep. 1974

MSC-14615

Aluminized Mylar film is bonded to polyurethane foam mold; Mylar is then removed, leaving highly reflective coating of aluminum on foam. Mold may be used repeatedly to make mirrors for several optical instruments. Large mirrors of almost any shape may be made singularly or in quantity.

B74-10172

FINGER RECORDING ELECTRODE SYSTEM FOR ELECTRICAL IMPEDANCE PLETHYSMOGRAPH

L. D. Montgomery and D. L. Moody, Jr.

Sep. 1974

ARC-10816

System facilitates location of recording electrodes of impedance plethysmograph that is used for measuring flow of blood in finger segment; electrodes can be relocated accurately and volume of finger segment under study can be determined precisely. System minimizes movement artifacts in plethysmograph trace because finger segment is held firmly.

B74-10183

ARTIFICIAL LIMB CONNECTION

L. J. Owens

Nov. 1974

KSC-10833

Connection simplifies and eases donning and removing artificial limb; eliminates harnesses and clamps; and reduces skin pressures by allowing bone to carry all tensile and part of

compressive loads between prosthesis and stump. Because connection is modular, it is easily modified to suit individual needs.

B74-10188**AUTOMATED SINGLE-SLIDE STAINING SYSTEM**

S. M. Mills and J. R. Wilkins
Nov. 1974

LANGLEY-11649

Apparatus developed to Gram-stain single slides automatically is flexible enough to accommodate other types of staining procedures. Method frees operator and eliminates necessity for subjective evaluations as to length of staining or decolorizing time.

B74-10199**NEW TOOTH ENAMEL FROM BRUSHITE CRYSTALS**

B. Rubin and J. D. Childress
Nov. 1974

ERC-10338

Appropriate nutrient gel solution could be used to precipitate brushite, which becomes hydroxyapatite, mineral found in bones and teeth. Gel can be made from sodium metasilicate and phosphoric acid, or gelatin, or other organic materials that polymerize in presence of acid to get gelatinous medium.

B74-10210**POLYMERS USED TO ABSORB FATS AND OILS: A CONCEPT**

H. E. Marsh, Jr.
Nov. 1974

NPO-11609

One approach to problem of excessive oils and fats is to develop method by which oil is absorbed into solid mixture for elimination as solid waste. Materials proposed for these purposes are cross-linked (network) polymers that have high affinity for aliphatic substances, i. e., petroleum, animal, and vegetable oils.

B74-10213**AUTOMATED DRUG IDENTIFICATION SYSTEM**

C. F. Campen, Jr.
Nov. 1974

NPO-13063

System speeds up analysis of blood and urine and is capable of identifying 100 commonly abused drugs. System includes computer that controls entire analytical process by ordering various steps in specific sequences. Computer processes data output and has readout of identified drugs.

B74-10220**SPACECRAFT OXYGEN RECOVERY SYSTEM**

P. D. Quattrone

Nov. 1974 See also B71-10203; B72-10051; B72-10074; B72-10194; B72-10195; B72-10219; B72-10246

ARC-10868

Recovery system is comprised of three integrated subsystems: electrochemical carbon dioxide concentrator which removes carbon dioxide from atmosphere, Sabatier reactor in which carbon dioxide is reduced with hydrogen to form methane and water, and static-feed water electrolysis cell to recover oxygen from water.

B74-10226**EMERGENCY DESCENT DEVICE**

R. R. Belew

Nov. 1974 See also B73-10369

M-FS-23074

Device includes cable wound on reel; special assembly enclosed in fluid medium controls unwinding speed of cable during descent. Device is compact and reliable. It can be rewound quickly because reel disengages from latches when it is turned in opposite direction.

B74-10231**IMPROVED METHODS FOR COUNTING BACTERIA IN PHYSIOLOGICAL FLUIDS**

G. L. Picciolo

Dec. 1974 See also B71-10051

GSFC-11917

Bacterial population detection is based on detection of adenosine triphosphate (ATP), chemical present in all living matter. Amount of ATP in sample, after chemically removing all nonbacterial ATP, is directly related to bacterial population. Sensitivity is improved by concentration step; specificity is improved by lowering pH of solution.

B74-10245**IN VIVO MEASUREMENT OF MECHANICAL IMPEDANCE OF BONE**

D. R. Young and G. Thompson (M. B. Associates)
Dec. 1974

ARC-10857

System of measurement provides indications of ulnar properties independent of characteristics of surrounding soft tissue and other bones. Mechanical modal approximated ulnar response so average bending rigidity could be determined to provide direct index of bone resistance to bending loading.

B74-10249**LIQUID-COOLED LINER FOR HELMETS**

B. A. Williams and W. Elkins (Aerotherm Corp.)
Dec. 1974

ARC-10534

Liner acts as coolant tubing, manifold, and supporting structures. Fabric of waffle-design is made of several integrated channels (or capillaries) through which coolant liquid can flow. Thin and light-weight liner can be incorporated into any type of helmet or head gear.

B74-10278**LIQUID SAMPLE PROCESSOR**

V. J. Jahnsen and C. F. Campen, Jr.
Jan. 1975 See also B74-10213

NPO-13136

Processor is automatic and includes series of extraction tubes packed with fibrous absorbent material of large surface area. When introduced into these tubes, liquid test samples become completely absorbed by packing material as thin film.

B74-10289**MICRO-ORGANISM DISTRIBUTION SAMPLING FOR BIOASSAYS**

B. A. Nelson (Martin Marietta Corp.)
Feb. 1975

LANGLEY-10789

Purpose of sampling distribution is to characterize sample-to-sample variation so statistical tests may be applied, to estimate error due to sampling (confidence limits) and to evaluate observed differences between samples. Distribution could be used for bioassays taken in hospitals, breweries, food-processing plants, and pharmaceutical plants.

06 MECHANICS

B74-10001**MECHANICAL COUPLING FOR HIGH CYCLIC LOADING**

M. O. Dustin and O. Mehmed
Mar. 1974 See also NASA-TM-X-2812

LEWIS-11690

One-piece cylindrical coupling with "necked-down" regions at each end form flexures allowing small misalignments between actuator and load. Coupling has zero backlash, low mass, close spacing between actuator and load, high stiffness in direction of motion, and allowance for misalignments and deflections without causing high side loading on components.

B74-10013
LIGHTWEIGHT, HIGH SPEED BEARING BALLS: A CONCEPT

R. J. Parker

Apr. 1974 See also B70-10331

LEWIS-11087

Low mass bearing balls with hardened iron-plated surfaces can eliminate problems of low fatigue strength and flexure fatigue, and lead to increased life and reliability of high speed ball bearings. Low mass balls exert lower centrifugal forces on outer race of bearing thus eliminating detrimental effect of high speed operation.

B74-10028
WIRELESS TELEMETRY SYSTEM FOR FLOATING BODIES

L. T. Fain and H. E. Cribb

Jul. 1974

KSC-10855

Unit includes rugged waterproof cables and equipment containers, low power, sturdy antenna construction, and easy equipment setup and serviceability. Accuracy and reliability of entire measurement system were not sacrificed.

B74-10030
IMPROVED GENEVA MECHANISM

C. H. Debenham (TRW, Inc.)

May 1974

LANGLEY-11443

Locking disk (flange) is stepped and lug is added to each arm of star wheel. These changes allow much longer cutout in star wheel stations, essentially eliminating chatter and wear. Jamming problem can be solved by extending star wheel arms and flaring slots.

B74-10045
BRAKE FOR ROLLABLE PLATFORM

A. L. Morris

May 1974

ARC-10512

Frame-mounted brake is independent of wheels and consists of simple lever-actuated foot. Brake makes good contact with surface even though foot pad is at higher or lower level than wheels, this is particularly important when a rollable platform is used on irregular surface.

B74-10046
REVERSED COWL-FLAP THRUST AUGMENTOR

D. Y. Cheng

May 1974

ARC-10754

Inlet mouthpiece with variable geometry improves low-speed performance of inlet (or ejector) of jet engines by use of reversed cowl-flap mechanism. Flaps can be adjusted mechanically or system can be operated with pressure taps set so pressure on inlet face is always smaller than pressure on back of inlet.

B74-10048
SOLAR ARRAY DEPLOYMENT FROM A SPINNING SPACECRAFT

A. H. Carlin (TRW Systems Group, TRW, Inc.), J. B. Gardner (TRW Systems Group, TRW, Inc.), and H. A. Lassen (TRW Systems Group, TRW, Inc.)

May 1974

ARC-10787

Cylindrical drum, wrapped with flexible solar array of solar cells mounted on Mylar sheet, is held by two end-fittings with cable (under tension) passing through axle of drum. Drum is held to end-fittings by axial cable through drum axle; drum is released for deployment when cable is cut at each end and end-fittings spring outward.

B74-10049
THRUST VECTOR CONTROL FOR V/STOL AIRCRAFT

E. W. Toney (McDonnell-Douglas Corp.)

May 1974

ARC-10788

To deflect exhaust of V/STOL aircraft fan deploy set of rectangular flaps so exhaust stream can be turned as required, and then directed through exit nozzles which generate thrust in appropriate direction; lateral deflection of exhaust is provided by yaw vanes.

B74-10058
VENTED VECTORING-NOZZLE FOR STOL AND V/STOL AIRCRAFT

D. W. Esker (McDonnell-Douglas Corp.)

May 1974

ARC-10839

Vented vectoring-nozzle has superior thrust coefficient and is lighter in weight because it does not require completely enclosed elbow duct ordinarily used to deflect nozzle flow. Improved nozzle has primary nozzle and three-sided elbow deflector.

B74-10059
PROPELLANT ACQUISITION DEVICE FOR USE WITH A SPINNING TOROIDAL TANK

J. E. Anderson (Martin Marietta Corp.)

May 1974

ARC-10840

System consists of four radially disposed communication channels attached to propellant-retaining ring situated at bottom of toroidal tank. Ring-and-channel acquisition system design provides uniform propellant distribution within spinning tank during all mission phases.

B74-10061
DESIGN CRITERIA MONOGRAPH FOR ACTUATORS AND OPERATORS

Innovator not given Jul. 1974 See also NASA-SP-8090

LEWIS-12264

Instrumentation for actuators and operators includes electrical position-indicating switches, potentiometers, and transducers and pressure-indicating switches and transducers. Monograph is based on critical evaluation of experiences and practices in design, test, and use of these control devices and instruments in operational space vehicles.

B74-10070
SUPPRESSION OF BENDING MOTION IN ELASTIC BODIES

J. C. Howard

Jun. 1974

XAC-05632

Sensor may be located on aircraft at such point that there can be extracted output signal which is function of aircraft acceleration. Signals are supplied to summing device where they are combined to produce output signal which controls application of suppression forces.

B74-10076
DYNAMIC TRANSFORMATION METHOD

J. R. Admire, E. J. Kuhar, Jr. (GE), and C. V. Stahle, Jr. (GE)

Jul. 1974

M-FS-22848

Eigenvalue problem associated with modal-synthesis vibration analysis of complex structures requires simplifying assumptions for solution. Computer program, Dynamic-transformation Adapted to Modal-synthesis Using Stiffness-coupling, improves computational economy for vibration analysis of complex structures while still considering substructure modes.

B74-10087
DESIGN CRITERIA MONOGRAPH FOR VALVE COMPONENTS

Innovator not given Sep. 1974 See also NASA-SP-8094

LEWIS-12327

Monograph treats valve design technology problems as they were solved in successful development of lightweight operational valves for liquid rocket systems. General practices for cleaning and contamination prevention are summarized. Balance of information is arranged by topic, since detail design requirements apply to most types of valves.

B74-10091**PREDICTION OF UNSTEADY AERODYNAMIC LOADINGS CAUSED BY TRAILING-EDGE CONTROL-SURFACE MOTIONS IN SUBSONIC COMPRESSIBLE FLOW**

M. C. Redman (Boeing Co.), W. S. Rowe (Boeing Co.), and B. A. Winther (Boeing Co.)

Aug. 1974

LANGLEY-11175

Program determines direct surface loadings, using pressure terms that correctly represent known singularity functions around boundaries or wing with control surface. Program provides numerical prediction of unsteady loadings caused by control-surface motions.

B74-10092**HEAT-TRANSFER THERMAL SWITCH**

M. V. Friedell (Martin Marietta Corp.) and A. J. Anderson (Martin Marietta Corp.)

Aug. 1974

LANGLEY-11232

Thermal switch maintains temperature of planetary lander, within definite range, by transferring heat. Switch produces relatively large stroke and force, uses minimum electrical power, is lightweight, is vapor pressure actuated, and withstands sterilization temperatures without damage.

B74-10131**MAGNETIC BEARINGS WITH COMBINED RADIAL AND AXIAL CONTROL**

L. Veillette

Sep. 1974

GSFC-11551

Bearings reduce friction by allowing air of vacuum gaps between rotating members through properly-applied magnetic fields. Advantages: There is no physical contact between rotor and support structure; bearings operate directly in vacuum environment without lubrication; and there is unlimited operating lifetime, independent of speed.

B74-10135**THERMALLY-STABLE, SYNTACTIC PYRRONE FOAMS**

B. G. Kimmel (Hughes Aircraft Co.)

Sep. 1974 See also NASA-CR-2222

LANGLEY-11325

Foam formulations may be readily emplaced in honeycomb structures after heating to soft, doughlike consistency and forcing heated mixture into honeycomb cells. Final cure can be accomplished by simple oven cure, with no need for containment or restriction of foam formulation during cure.

B74-10138**CONTROL VANE FOR ENGINE EXHAUST FLOW**

C. S. Shaw (USAAMRDL-Langley Directorate) and J. C. Wilson (USAAMRDL-Langley Directorate)

Sep. 1974 See also NASA-TM-X-3016

LANGLEY-11570

Vane solves problem of hot-gas exhaust impingement on curved-duct exteriors, shielding, and other nearby structure components. To eliminate secondary egress of exhaust, curved vane is placed upstream of engine exhaust duct and in close proximity to exhaust exit to induce free-stream flow more in line with exit.

B74-10144**SELF-LEVELING LOAD TABLE**

J. L. Burch

Sep. 1974

M-FS-22039

Table floats in tank of water and has air compartments underneath. Table height and level are controlled by automatic adjustment or air pressure within these compartments.

B74-10146**ANTISKID BRAKING SYSTEM**

J. S. Pazdera (Univ. of Mo.)

Sep. 1974

M-FS-22807

Published report describes analytical development and simulation of braking system. System prevents wheels from skidding when brakes are applied, significantly reducing stopping distance. Report also presents computer simulation study on system as applied to aircraft.

B74-10151**SEPARATION DYNAMICS OF S-II DERIVATIVE LAUNCH VEHICLE**

L. A. Schmidt (Rockwell Intern. Corp.) and W. D. Vinson, Jr. (Rockwell Intern. Corp.)

Sep. 1974

M-FS-24325

Computer program analyzes separation dynamics between two vehicles from time prior to separation to later time when separation may be considered complete. Program also may be used in evaluating various separation schemes and synthesizing separation systems by manipulation of data and various program options.

B74-10156**HOLOGRAPHIC EVALUATION OF FATIGUE CRACKS BY A COMPRESSIVE STRESS (HYSTERESIS) TECHNIQUE**

S. A. Freska (Martin Marietta Corp.) and W. D. Rummel (Martin Marietta Corp.)

Sep. 1974 See also NASA-CR-2369

MSC-14555

Holographic interferometry compares unknown field of optical waves with known one. Differences are displayed as interference bands or fringes. Technique was evaluated on fatigue-cracked 2219-T87 aluminum-alloy panels. Small cracks were detected when specimen was incrementally unloaded.

B74-10174**SWASHPLATE FEEDBACK CONTROL FOR TILT-ROTOR AIRCRAFT**

H. R. Alexander (Boeing Vertol Co.), J. P. Magee (Boeing Vertol Co.), and J. J. Morris (Boeing Vertol Co.)

Sep. 1974 See also NASA-CR-114600; NASA-CR-114664

ARC-10854

Changes in angle of attack in system were sensed indirectly by gages which responded to strains induced in wing structure. Output signals were amplified, filtered, and used to activate swashplate actuators. System provided significant reduction in blade loads and desirable changes in hub forces and moments.

B74-10179**PULSE-WIDTH-MODULATED SERVO VALVE FOR AUTO-PILOT SYSTEM**

H. D. Garner

Oct. 1974

LANGLEY-11643

Valve was developed for autopilot wing-lever system and is to be used in light, single-engine aircraft. Valve is controlled by electronic circuit which feeds pulse-width-modulated correction signals to two solenoids. Valve housing is cast from plastic, making it very economical to fabricate.

B74-10193**AUTOMATIC SOLDERING MACHINE**

J. A. Stein (Rockwell Intern. Corp.)

Nov. 1974

MSC-19401

Fully-automatic tube-joint soldering machine can be used to make leakproof joints in aluminum tubes of 3/16 to 2 in. in diameter. Machine consists of temperature-control unit, heater transformer and heater head, vibrator, and associated circuitry controls, and indicators.

B74-10227**DESIGN CRITERIA MONOGRAPH FOR VALVE ASSEMBLIES**

Innovator not given Dec. 1974 See also NASA-SP-8097

LEWIS-12332

Monograph is limited to valve selection factors for trade-off

06 MECHANICS

studies, configuration analyses, actuator selection, and integration of components. Material is organized along lines of valve design sequence.

B74-10228
DESIGN CRITERIA MONOGRAPH ON CENTRIFUGAL FLOW TURBOPUMPS
Innovator not given Dec. 1974 See also NASA-SP-8109
LEWIS-12346

Monograph reviews and assesses current design practices, and from them establishes firm guidance for achieving greater consistency in design, increased reliability in end product, and greater efficiency in design effort. Review should be of interest to manufacturers and users of pumps, power drives, turbine drives, and rotary equipment in general.

B74-10233
LAMINATING CORED, STRESSED-FACE, SANDWICH STRUCTURES
W. C. Heier
Dec. 1974
XLA-11028

Structure assemblies of fragile and flexible components are rigidly supported from aggregate exterior during bonding operation. Support assures conformance to desired profiles and duplication of assembly results. It minimizes exterior surface identification with core character, improving structure rigidity while adding desirable aerodynamic qualities and finished appearance.

B74-10235
ENVIRONMENTAL CONTROL AND WASTE MANAGEMENT SYSTEM DESIGN CONCEPT
A. R. Gandy
Dec. 1974
LANGLEY-11588

Passive device contains both solid and liquid animal waste matter for extended period without being cleaned and without contaminating animal. Constant airflow dries solid waste and evaporates liquid matter. Technique will maintain controlled atmospheric conditions and cage cleanliness during periods of 6 months to 1 year.

B74-10238
NONDESTRUCTIVE TESTING OF RAILROAD WHEELS AND RAILS BY ULTRASONICS
W. N. Clotfelter and E. R. Risch
Dec. 1974
M-FS-23086

Quality control of wheels and rails can be improved by using ultrasonic technique developed for measuring stresses in metallic materials. In addition, parts already in use can be tested and replaced if they are found to be unsafe. Test equipment includes two transducers.

B74-10241
IMPLEMENTATION OF A SELF-CONTROLLING HEATER: A CONCEPT
M. G. Strange
Dec. 1974 See also NASA-TN-D-7248
GSFC-11752

Proposed heater uses its own temperature coefficient for sensing function. Heating power is supplied from current source, heater voltage containing temperature information. Dynamic stability is very high since there is no thermal lag as would exist with separate heater and sensor.

B74-10252
EXPANDABLE SPACE FRAMES
A. H. Schoen
Jan. 1975
ERC-10365

Frame consists of struts connected by hinge joint assemblies. Because struts are hinged, entire frame can be collapsed during transportation and expanded at construction site. Frame has two types of hinge joint assemblies: one for three-dimensional space frame expansion and another for two-dimensional expansion.

B74-10267
LEAD-OXYGEN CLOSED-LOOP BATTERY SYSTEM
W. J. Britz, W. A. Boshers, and J. J. Kaufmann
Jan. 1975
M-FS-23059

Calculations show that battery can deliver up to 35 watt-hours per pound, conventional lead-acid batteries deliver 10 to 15 watt-hours per pound. Weight reduction is due to replacement of solid lead-peroxide electrodes with metal current-collector screen, catalyst, and Teflon membrane.

B74-10273
FLANGE DESIGN FOR LARGE-SCALE MODULAR ASSEMBLY JIGS
M. M. Gilman (Rockwell Intern. Corp.)
Jan. 1975
MSC-19372

Technique incorporates weld-free method for securing flanges to projecting ends of unmachined box-beam framework so flanged structure may be reused without modification. One such framework may be readily assembled to another by simply matching flanges together and passing connecting members between preformed holes in structures.

07 MACHINERY, EQUIPMENT AND TOOLS

B74-10008
DESIGN CRITERIA MONOGRAPH FOR LIQUID PROPELLANT GAS GENERATORS
Innovator not given Mar. 1974 See also NASA-SP-8081
LEWIS-12139

Monograph reviews and assesses current design practices, and from them establishes firm guidance for achieving greater consistency in design, increased reliability in end product, and greater efficiency in design effort. Main emphasis of monograph is on bipropellant gas generators using hydrogen peroxide and hydrazine monopropellants.

B74-10009
VERTICAL COPY CAMERA SYSTEM PROVIDES PHOTOGRAPHS FROM ERTS-1 IMAGERY
R. J. Schertler and R. E. Texler
Apr. 1974
LEWIS-12140

Versatility of commercially-available camera system permits wide range of enlargement (up to 10X) and reduction (down to 1/8) to be achieved with standard lenses. Use of easily interchangeable camera backs permits photographic formats from 35 mm to 10.2 X 12.7 cm (4 x 5 in) and permits easy use of black and white and color films and Polaroid materials.

B74-10010
DESIGN CRITERIA MONOGRAPH FOR PRESSURE REGULATORS, RELIEF VALVES, CHECK VALVES, BURST DISKS, AND EXPLOSIVE VALVES
Innovator not given Apr. 1974 See also NASA-SP-8080
LEWIS-12168

Monograph reviews and assesses current design practices, and from them establishes firm guidance for achieving greater consistency in design, increased reliability in end product, and greater efficiency in design effort. Five devices are treated separately. Guides to aid in configuration selection are outlined.

B74-10014
DESIGN CRITERIA MONOGRAPH ON TURBOPUMP SHAFTS AND COUPLINGS
Innovator not given May 1974 See also NASA-SP-8101
LEWIS-12204

Monograph reviews and assesses current design practices, and considers all aspects of turbopump system shaft dynamics peculiar to and necessary to shaft and coupling design. Associated components (bearings, housing, etc.) that influence shaft or coupling design are treated to extent necessary to define that influence.

B74-10020
PROCESS TO RESTORE OBLITERATED SERIAL NUMBERS ON METAL SURFACES

S. G. Young, B. Parker (Sacramento State Univ.), and W. J. Chisum (Calif. State Dept. of Justice)
Jun. 1974 See also B71-10099; NASA-TM-X-52929; NASA-TM-X-68257

LEWIS-12085

Metal smeared into grooves of serial numbers by grinding or filing can be cleaned out by process called cavitation. Ultrasonic vibrator generates very high frequency vibrations in water which create millions of microscopic bubbles. Cavitation bubbles impact metal surface at thousands of pounds per square inch pressure. Metal particles filling grooves are broken away.

B74-10023
MODULAR SUPPORT BLOCKS FOR FLUID LINES

J. M. Dimino (Rockwell Intern. Corp.) and R. D. Deskin (Rockwell Intern. Corp.)
Apr. 1974

MSC-19335

Modular line block comprises matched modular elements machined to accept fluid lines of different diameters. Modules can support different fluid-line configurations. Top and bottom surfaces are machined to accept dovetail strip used for holding modules together. End modules have holes drilled through to accept fastening screws.

B74-10031
PRECISION GLASSCUTTER

D. S. Coombs
May 1974

LANGLEY-11604

Glass is positioned against preset stops; and glasscutter, which is permanently mounted in carrier support by cutter guide rails, is used to scribe glass at predetermined length. Glass is placed against predetermined groove at opposite end to correspond with setting of cutter carrier support and it is broken on end of cutter base.

B74-10039
CONTROL OF ELASTICITY IN CAST ELASTOMERIC SHOCK/VIBRATION ISOLATORS

L. Owens and C. Bright
Jul. 1974

KSC-10850

Elasticity is determined by isolators physical dimensions and by type of elastomer used. Once elastomer is selected and cast between two concentric tubes of device, isolator elasticity will remain fixed. Isolators having same dimensions can be built to different elasticity requirements using same elastomer.

B74-10062
IMPROVED CIRCUMFERENTIAL SHAFT SEAL

L. P. Ludwig and T. N. Strom
Jul. 1974 See also NASA-TN-D-7130

LEWIS-11873

Comparative tests of modified and unmodified carbon ring seals showed that addition of helical grooves to conventional segmented carbon ring seals reduced leakage significantly. Modified seal was insensitive to shaft runout and to flooding by lubricant.

B74-10105
SHUTOFF AND THROTTLING VALVE

L. G. Hays
Aug. 1974
NPO-11951

Leaktight shutoff, precise flow control, and very low pressure

drop are incorporated in all-metal valve designed for operation under extreme temperatures. Valve constructed with refractory metal is intended for control of high-temperature liquid cesium, but has applications related to control of high- and low-temperature liquids and gases.

B74-10148
DYNAMOMETER FOR MEASURING MACHINING FORCES IN TWO PERPENDICULAR DIRECTIONS

I. A. Sutherland
Sep. 1974

M-FS-22899

Published report discusses development of two-component force dynamometer which is used for dynamic measurement of machining forces in cutting and thrust directions. Resulting data suggest that faster metal-cutting machines may be developed that have reduced vibrations.

B74-10164
BOLT INSTALLATION TOOL FOR TIGHTENING LARGE NUTS AND BOLTS

A. R. McDougal and R. M. Norman
Sep. 1974

NPO-13059

Large bolts and nuts are accurately tightened to structures without damaging torque stresses. There are two models of bolt installation tool. One is rigidly mounted and one is hand held. Each model includes torque-multiplier unit.

B74-10237
MECHANICAL ROD PEENING

E. J. Minter and V. P. Caruso
Dec. 1974

M-FS-23047

Tool is inexpensive and gives repeatable results. It is modified commercially-available rod-type weld slag removal gun and is pneumatically operated by regulated compressed air supply.

B74-10240
A BAND CLAMP WITH A SPRING TOGGLE LEVER

M. Simmonds (ATO, Inc.)
Dec. 1974

MSC-14736

Clamp could have several applications, as it provides tolerance for both expansion and contraction. It might be useful with firemen's breathing apparatus and luggage racks and other freight-carrying equipment. Also, using same piece as handle and spring reduces production costs by reducing number of parts.

B74-10266
SELF-REGENERATING DESICCANT SYSTEM

K. G. Anthony and E. P. Herndon
Jan. 1975

M-FS-23057

Compact system uses inherent diurnal cyclic airflow in system and energy of sun as drying heat. System requires no power for operation, has no moving parts to wear out, requires no blowers or manifolds, and is relatively inexpensive to produce.

B74-10269
NEW INSULATION ATTACHMENT METHOD ELIMINATES COMPATIBILITY BONDLINE STRESSES

W. C. Schneider
Jan. 1975

MSC-12615

Auger-shaped single-point fastener attaches rigid surface insulation tiles to orbiter shuttle spacecraft. Method can be used to bond wide variety of materials, including insulation, elastomers, and fibrous materials. Since insulation is attached at only one point, insulation and structure are free to form without inducing bond separation.

B74-10292
MECHANICAL SOLAR MOTOR: A CONCEPT

L. A. Hein and W. N. Myers
Feb. 1975

07 MACHINERY, EQUIPMENT AND TOOLS

M-FS-23062

Motor is proposed to convert radiation from sun directly into mechanical energy. Motor utilizes thermal expansion of liquid, heated by sun, as driving force. Unlike most thermally powered systems, it does not require that liquid be converted into vapor.

B74-10297

STRAIN GAUGE SENSITIVITY IMPROVED BY USING A COMPOSITE BEAM

R. H. Silver and S. H. Kalfayan
Feb. 1975

NPO-13170

Composite beam connected to strain gauge and mounted on test specimen is capable of amplifying small strains by factor of 10. Tests indicate that resulting output can be 10 times greater than standard method.

B74-10298

REMOTELY OPERATED GAS-PRESSURE REGULATOR AND SHUTTLE VALVE

E. F. Koch
Feb. 1975

NPO-13201

Valve features precise gas-pressure regulation and shuts off flow by remote control. Valve is made up of regulator valve cavity and spring-compression adjusts cavity. Elements in regulator cavity are conventional and include high-pressure inlet, ball which mates with seat, push rod, and pressure-sensing diaphragm.

08 FABRICATION TECHNOLOGY

B74-10018

HIGH STRENGTH, WIRE-REINFORCED ELECTROFORMED STRUCTURES

J. M. Kazaroff, R. A. Duscha, and L. C. McCandless (Gen. Technologies Corp.)
Jun. 1974 See also NASA-CR-134480

LEWIS-12087

Using half-round reinforcing wires, electrodeposited matrix metal readily fills spaces between wires in intimate contact with wires and without voids. Procedure combines advantages of electroforming with high-strength of commonly available wire to produce non-welded shell structures for high pressure uses.

B74-10114

LIGHT-WEIGHT SPHERICAL SUBMERGENCE VESSEL

I. Baker (Hughes Aircraft Co.)
Aug. 1974

ARC-10838

Design vessel with very low thickness-to-radius ratio to obtain low weight, and fabricate it with aid of precision tracer-lathe to limit and control imperfections in spherical shape. Vessel is thin-walled, spherical, monocoque shell constructed from hemispheres joined with sealed and bolted meridional flange.

B74-10125

BINARY ALLOYS FOR REFRACTORY-METAL BRAZING

J. F. Morris
Nov. 1974 See also NASA-TM-X-68190

LEWIS-12184

Data on binary-metal eutectics and melting-point minimums have been assembled for use in selecting brazing filler compositions for refractory metals. Data are presented in four tables for ready reference. Brief discussion of problems and potentials of metallides is included in appendix.

B74-10126

FABRICATION OF THICK STRUCTURES BY SPUTTERING

J. M. Kazaroff, E. D. McClanahan (Battelle Pacific Northwest Labs.), R. Busch (Battelle Pacific Northwest Labs.), and R. W.

Moss (Battelle Pacific Northwest Labs.)

Dec. 1974 See also NASA-CR-134542; NASA-SP-5111

LEWIS-12331

Deposit, 5500-gram of Cu-0.15 wt % Zr alloy, sputtered onto copper cylinder to average thickness of 12.29 mm. Structure was achieved with high-rate sputter deposition for about 100 hours total sputtering time. Material had twice the strength of unspattered material at temperatures to 723 K and equivalent strength at nearly 873 K.

B74-10141

PRESSURE APPLICATION TECHNIQUE FOR HIGH-TEMPERATURE COMPOSITE FABRICATION

R. M. Baucom and J. F. Powers
Sep. 1974

LANGLEY-11601

Technique utilizes characteristic of room-temperature vulcanizing rubber (RTV) which expands readily when heated. RTV expansion can exert uniform pressure on filament-reinforced polymer materials during curing. Technology accommodates high-temperature pressure application for P13-N polyimide composite consolidation during cure.

B74-10185

PROCESS FOR FABRICATION OF STABILIZED ALUMINUM PHOSPHATE FIBERS

T. J. Ormiston (GE) and R. A. Tanzilli (GE)
Nov. 1974 See also NASA-CR-132331

LANGLEY-11526

Ceramic possesses ideal property combination of high refractoriness and low thermal expansion. Fiber exceeds performance of fused silica fibers at high temperatures. It shrinks less, does not devitrify into unstable cristobalite structure, and is potentially less sensitive to impurities. Might be used for high-temperature insulation, fire protection, composites, and refractories.

B74-10214

SIDE WIRE FEED FOR WELDING APPARATUS

J. C. Arnett
Nov. 1974

NPO-13148

Coaxial electrode arrangement has solid central electrode, insulated outer electrode, and transverse channel for feeding wire through tip of electrode assembly. Polymeric insulation is thrust aside by pressure, which is provided by separately operated mechanism acting through central electrode.

B74-10263

LOW-TEMPERATURE ELECTROSTATIC SILICON-TO-SILICON SEALS USING SPUTTERED BOROSILICATE GLASS

C. A. Hardesty, A. D. Brooks (Res. Triangle Inst.), and R. P. Donovan (Res. Triangle Inst.)
Jan. 1975

LANGLEY-11589

Silicon members are hermetically sealed to each other. Process produces no measurable deformation of silicon surfaces and is compatible with package designs of tight tolerance. Seals have been made with glass coatings in 10-mm to 20-mm thickness range without any prior annealing of coated silicon substrates.

B74-10270

PLASTIC COVERING ON AIRFOIL STRUCTURE PROVIDES SMOOTH UNINTERRUPTED SURFACE

J. A. Kinzler, L. G. Fehrenkamp, J. T. Heffernam, and W. S. Lee
Jan. 1975

MSC-12631

Primed surface is covered with adhesive. Sheet of plastic film is stretched over adhesive and mechanical holder is used to apply tension to ends of sheet to make it conform to surface of airfoil. After adhesive cures, plastic can be trimmed with sharp cutting tool.

B74-10272

EXPLOSIVE WELDING TECHNIQUE FOR JOINING ALUMI-

NUM AND STEEL TUBES

M. E. Wakefield (Martin Marietta Corp.)

Jan. 1975

MSC-14721

Silver sheet is wrapped around aluminum portion of joint. Mylar powder box is wrapped over silver sheet. Explosion welds silver to aluminum. Stainless-steel tube is placed over silver-aluminum interface. Mylar powder box, covered with Mylar tape, is wrapped around steel member. Explosion welds steel to silver-aluminum interface.

09 COMPUTER PROGRAMS**B74-10033****DESIGN STANDARDS FOR LOW-PROFILE FLANGES**

W. P. Prasthofer

May 1974

M-FS-22708

Analysis of low-profile flange is based on thin shell theory and simple ring theory. Program produces comprehensive design procedure with subsequent stress and deformation analysis. Program was written in FORTRAN IV for UNIVAC 1108 computer.

B74-10034**MODULAR DIGITAL COMPUTER SYSTEM DESIGN**

Innovator not given (Hughes Aircraft Corp.) Jul. 1974

M-FS-22935

Automatically-Reconfigurable Modular Multiprocessor System (ARMMS) provides redundant processing with dynamic mode switching in real time. Design will provide higher computer capability than that presently available for same amount of hardware and will furnish modular system which is responsive to diverse problems effectively.

B74-10037**COMPUTER PROGRAM FOR SPACECRAFT-BOOSTER SEPARATION SPRING SELECTION, SET COMPOSITION, AND LOCATION DETERMINATION**

Innovator not given (Space Div. of GE) Jul. 1974

GSFC-11616

Program combines all calculation and determination requirements into one comprehensible technique. Program automatically performs selection of separation springs, composition of spring sets, and correct spring location with improved accuracy and reliability.

B74-10040**GRAPHICS SHADOWING ANALYSIS**

S. R. Hayes (McDonnell-Douglas Astronautics Co.)

Jul. 1974

M-FS-21406

Visual image is generated on cathode-ray tube screen to scale and is constructed according to dimensions of specified craft. Once displayed, image may be manipulated by several different means.

B74-10043**MARSHALL INFORMATION RETRIEVAL AND DISPLAY SYSTEM (MIRADS)**

J. L. Groover (Computer Sci. Corp.), S. C. Jones (Computer Sci. Corp.), and W. L. King (Computer Sci. Corp.)

Jul. 1974

M-FS-22536

Program for data management system allows sophisticated inquiries while utilizing simplified language. Online system is composed of several programs. System is written primarily in COBOL with routines in ASSEMBLER and FORTRAN V.

B74-10044**GENERALIZED CURVE FIT AND PLOTTING (GECAP) PROGRAM**

B. D. Beadle, II, B. D. Dolerhie, Jr., J. W. Owen, and R. A.

Schlagheck

Jul. 1974

M-FS-22728

Program generates graphs on 8 1/2 by 11 inch paper and is designed to be used by engineers and scientists who are not necessarily professional programmers. It provides fast and efficient method for display of plotted data without having to generate any additional FORTRAN instructions.

B74-10067**COMPUTER PROGRAM FOR PREDICTING OFF-DESIGN PERFORMANCE OF CENTRIFUGAL COMPRESSORS**

M. R. Galvas (U. S. Army Air Mobility R and D Lab.)

Aug. 1974

LEWIS-12186

Complete knowledge of compressor overall geometry and working fluid total inlet conditions is required for program's use. On given speed line, compressor performance is calculated for range of inlet velocity levels. Working fluid state conditions and flow properties are calculated using mean stream line one-dimensional analysis.

B74-10084**COMPUTER PROGRAM FOR FLEXIBLE ROTOR DYNAMICS ANALYSIS**

F. A. Shen (Rockwell Intern. Corp.)

Aug. 1974

LEWIS-12153

Program analyzes general nonaxisymmetric and nonsynchronous transient and steady-state rotor dynamic performance of bending- and shear-wise flexible rotor-bearing system under various operating conditions. Program can be used as analytical study tool for general transient spin-speed and/or non-axisymmetric rotor motion.

B74-10113**COMPUTATION OF AERODYNAMIC INTERFERENCE BETWEEN LIFTING SURFACES AND LIFT- AND CRUISE-FANS**

M. F. E. Dillenius (Nielsen Eng. and Res., Inc.), M. R. Mendenhall (Nielsen Eng. and Res., Inc.), and S. B. Spangler (Nielsen Eng. and Res., Inc.)

Aug. 1974

ARC-10833

Sequence of three computer programs predicts aerodynamic interference on lifting surfaces of transport-type aircraft which are equipped with lift and cruise fans; for example, high-bypass-ratio engine and wing-pylon tail configuration or fuselage-mounted lift-fan and wing-tail configuration.

B74-10123**COMPUTER PROGRAM FOR CALCULATING WATER AND STEAM PROPERTIES**

R. C. Hendricks, I. C. Peller, and A. K. Baron

Nov. 1974

LEWIS-12206

Computer subprogram, WASP, accepts any two of pressure, temperature, and density as input conditions. Pressure and either entropy or enthalpy are also allowable input variables. This flexibility is especially useful in cycle analysis. Metastable calculations can also be made using WASP.

B74-10127**DATA SUMMARY AND COMPUTER PROGRAM FOR AXIAL-FLOW PUMP ROTOR PERFORMANCE**

M. J. Miller (Iowa State Univ.), T. H. Okiishi (Iowa State Univ.), G. K. Serovy (Iowa State Univ.), D. M. Sandercock, and W. R. Britsch

Dec. 1974

LEWIS-11920

Assembly of noncavitating blade element performance data for axial-flow pump rotor configurations has been collected and organized. Program facilitates handling large amounts of experimental data involved and may be used as data reduction

09 COMPUTER PROGRAMS

program to process flow and performance measurements from other axial-flow pump configurations.

B74-10128 COMPUTER PROGRAM FOR CALCULATING CRITICAL SPEEDS OF ROTATING SHAFTS

R. J. Trivisonno

Dec. 1974

LEWIS-11910

Shaft may include bearings, couplings, extra masses, and disks for gyroscopic effect. Shaft deflection is taken into account and provision is made in program for sections of shaft that are tapered. Plotter produces drawing of shaft with superimposed deflection curves at critical speeds together with all pertinent information related to shaft.

B74-10129 COMPUTER PROGRAM FOR CALCULATING LAMINAR, TRANSITIONAL, AND TURBULENT BOUNDARY LAYERS FOR A COMPRESSIBLE AXISYMMETRIC FLOW

J. A. Albers and J. L. Gregg

Dec. 1974

LEWIS-12178

Finite-difference computer program calculates viscous compressible boundary layer flow over either planar or axisymmetric surfaces. Flow may be initially laminar and progress through transitional zone to fully turbulent flow, or it may remain laminar, depending on imposed boundary conditions, laws of viscosity, and numerical solution of momentum and energy equations.

B74-10130 COMPUTER PROGRAM FOR CALCULATING VELOCITIES AND STREAMLINES ON MID-CHANNEL FLOW SURFACE OF AXIAL OR MIXED-FLOW TURBOMACHINE

T. Katsanis and W. D. McNally

Dec. 1974

LEWIS-12129

Program uses finite-difference and stream filament methods, input consists of blade and flow-channel geometry, upstream and downstream flow conditions from hub to shroud, and mass flow. Output includes streamline coordinates, flow angles, and velocities on mid-channel flow surface.

B74-10145 SPACE ULTRARELIABLE MODULAR COMPUTER (SUMC) INSTRUCTION SIMULATOR

R. T. Curran (Computer Sci. Corp.) and W. A. Hornfeck (Computer Sci. Corp.)

Sep. 1974

M-FS-22697

Simulator has been constructed as set of quasi-independent modules, regulated by one control module. All machine-dependent functions have been resolved such that simulation package is as machine independent as possible.

B74-10169 EIGENFUNCTION SOLUTION OF DAMPED STRUCTURAL SYSTEMS: DAMP

K. K. Gupta

Sep. 1974

NPO-13480

Program uses combination of procedures to determine eigenfunction solutions of discrete damped structures, including spinning ones, while fully exploiting banded configuration of associated matrices.

B74-10186 COMPUTER PROGRAM FOR STRUCTURAL ANALYSIS OF LAYERED ORTHOTROPIC RING-STIFFENED SHELLS OF REVOLUTION (SALORS): LINEAR STRESS ANALYSIS OPTION

M. S. Anderson, W. L. Heard, Jr., and M. M. Chen (Boston Univ.)

Nov. 1974

LANGLEY-11569

Program handles segmented, laminar, orthotropic shells with

discrete rings. Meridional variations are handled in material properties, temperatures, and wall thickness. Allows for linear variations of temperature through each layer of shell wall.

B74-10189 MODEL OPTIMIZATION USING STATISTICAL ESTIMATION

J. D. Collins (J. H. Wiggins Co.), G. C. Hart (J. H. Wiggins Co.), T. K. Hasselman (J. H. Wiggins Co.), B. Kennedy (J. H. Wiggins Co.), and H. Pack, Jr. (J. H. Wiggins Co.)

Nov. 1974

M-FS-22873

Program revises initial or prior estimate of stiffness and mass parameters to parameters yielding frequency and mode characteristics in agreement with test data. Variances are also calculated and consequently define uncertainties of final estimates.

B74-10190 FORTRAN AUTOMATIC CODE EVALUATION SYSTEM (FACES)

J. C. Browne (Inform. Res. Associates), T. Davis (Inform. Res. Associates), A. Haller (Inform. Res. Associates), M. Henneman (Inform. Res. Associates), R. Kleir (Inform. Res. Associates), and G. L. Lasseter (Inform. Res. Associates)

Nov. 1974

M-FS-22910

Software package takes as input FORTRAN program which may contain many modules (subroutines and functions). Main parts: (1) FORTRAN front end gathers information about input program and (2) set of routines organized as diagnostic package evaluates information and prints warning messages concerning actual or potential errors.

B74-10203 COMPUTER PROGRAM FOR BUCKLING LOADS OF ORTHOTROPIC LAMINATED STIFFENED PANELS SUBJECTED TO BIAXIAL IN-PLACE LOADS (BUCLASP 2)

A. V. Viswanathan (Boeing Co.) and M. Tamekuni (Boeing Co.)

Nov. 1974

LANGLEY-11199

General-purpose program performs exact instability analyses for structures such as unidirectionally-stiffened, rectangular composite panels. Program was written in FORTRAN IV and COMPASS for CDC-series computers.

B74-10204 COMPUTER PROGRAM FOR STRESSES AND BUCKLING OF HEATED COMPOSITE-STIFFENED PANELS AND OTHER STRUCTURES (BUCLASP 3)

A. V. Viswanathan (Boeing Co.), M. Tamekuni (Boeing Co.), and L. L. Tripp (Boeing Co.)

Nov. 1974

LANGLEY-11533

General-purpose program is intended for thermal stress and instability analyses of structures such as axially-stiffened curved panels. Two types of instability analyses can be effected by program: (1) thermal buckling with temperature variation as specified and (2) buckling due to in-plane biaxial loading.

B74-10205 COMPUTER PROGRAM FOR STRESS, STABILITY, AND VIBRATION OF COMPLEX BRANCHED SHELLS OF REVOLUTION: BOSOR 4

D. Bushnell (Lockheed Missiles and Space Co.)

Nov. 1974

LANGLEY-11209

Code is easy to use yet is general with respect to: (a) type of analysis to be performed; (b) geometry of shell meridian; (c) type of wall construction; (d) type of boundary conditions, ring supports, and branching configuration; and (e) type of loading.

B74-10206 COMPUTER PROGRAM FOR STEAMTUBE CURVATURE ANALYSIS: ANALYTICAL METHOD

D. R. Ferguson (GE), P. H. Heck (GE), J. S. Keith (GE), D. J. Lahti (GE), and C. L. Merkle (GE)

Nov. 1974

LANGLEY-11535

Program provides design information for low-drag, high-drag-divergence, Mach number isolated nacelles suitable for use with advanced high-bypass-ratio, turbofan engines. One element is development of method to predict inviscid pressure distribution and flow field about arbitrary axisymmetric ducted body at transonic speeds.

B74-10207**INVESTIGATION OF EXIT-VELOCITY STRATIFICATION EFFECTS ON JETS IN A CROSSFLOW (STRJET)**

H. Ziegler (Northrop Corp.)

Nov. 1974

LANGLEY-11581

Program determines flow field about jets with velocity stratification exhausting into crossflow. Jets with three different types of exit-velocity stratification have been considered: (a) jets with relatively high-velocity core, (b) jets with relatively low-velocity core, and (c) jets originating from vaned nozzle.

B74-10215**EIGENVALUE ALGORITHM BASED ON A COMBINED STURM SEQUENCE AND INVERSE ITERATION TECHNIQUE (EASI)**

K. K. Gupta

Nov. 1974

NPO-13368

Desired roots are first isolated by Sturm sequence procedure. Then special variant of inverse iteration technique is applied for individual determination of each root along with its vector. Program was written in FORTRAN V for UNIVAC 1100-series computers.

B74-10221**CALCULATION OF AERODYNAMIC CHARACTERISTICS OF STOL AIRCRAFT**

M. F. E. Dillenius (Nielson Eng. and Res., Inc.), M. R. Mendenhall (Nielson Eng. and Res., Inc.), and S. B. Spangler (Nielson Eng. and Res., Inc.)

Nov. 1974

ARC-10882

Method predicts lift and pitching moment characteristics of STOL aircraft with externally-blown, jet-augmented wing-flap combinations using potential-flow approach which involves combination of two flow models. Method can accommodate multiple engines per wing panel and part-span flaps.

B74-10225**COMPUTERIZED LOGIC DESIGN OF DIGITAL CIRCUITS**

S. Gussow (Sperry Rand Corp.) and R. Oglesby (Sperry Rand Corp.)

Nov. 1974

M-FS-22401

Procedure performs all work required for logic design of digital counters or sequential circuits and simplification of Boolean expressions. Program provides simple, accurate, and comprehensive logic design capability to users both experienced and totally inexperienced in logic design

B74-10236**NUMERICAL PROGRAM FOR ANALYSIS OF THREE-DIMENSIONAL SUPERSONIC EXHAUST FLOW FIELDS (CHAR 3D)**

S. Dash (Advanced Technol. Labs., Inc.), P. Del Guidice (Advanced Technol. Labs., Inc.), A. Ferri (Advanced Technol. Labs., Inc.), and G. Roffe (Advanced Technol. Labs., Inc.)

Dec. 1974

LANGLEY-11596

Choice of reference plane orientation depends on specific nozzle geometry, with different configurations requiring different reference plane systems. In addition, for given configuration several reference systems may be used in different regions of flow field, so each system is locally aligned with flow.

B74-10279**AUTOMATED MAINTENANCE FOR COMPLEX HYBRID SYSTEMS**

G. C. Gilley

Jan. 1975

NPO-13143

Digital computer, Control Computer Subsystem (CCS), possess high degree of fault tolerance. CCS embodies concepts of self-test and repair. It is capable of monitoring its own performance and of identifying and replacing with standby spare any of its units that fail.

SUBJECT INDEX

Subject Index

The title of each Tech Brief is listed under several selected subject headings to provide the user with a variety of approaches in his search for specific information. The Tech Brief number, e.g., B74-10052, is located under and to the right of the title and is followed by a two-digit number, e.g., 04, which designates the subject category in which the entire entry can be found.

A

ABLATIVE MATERIALS

Glass fiber addition strengthens low-density ablative compositions
LANGLEY-11288 B74-10027 04

ABSORBERS (MATERIALS)

Noise suppressor
LANGLEY-11141 B74-10261 03

ABSORPTION

Polymers used to absorb fats and oils:
A concept
NPO-11609 B74-10210 05

ABSORPTION SPECTRA

Improved nondispersive infrared analyzer
ARC-10802 B74-10243 03

ABSORPTION SPECTROSCOPY

Measurement of temperature profiles in hot gases and flames
LEWIS-12055 B74-10060 03
Wavelength-selective, sequential Q-switching laser cavity
LANGLEY-11045 B74-10134 03

ACCELERATION (PHYSICS)

G-load indicator and warning device for aircraft
ARC-10806 B74-10171 02

ACCELEROMETERS

Suppression of bending motion in elastic bodies
XAC-05632 B74-10070 06
Temperature compensation of digital inertial sensors
NPO-13044 B74-10106 02

ACCIDENT INVESTIGATION

Directory of aerospace safety specialized information sources
LEWIS-12223 B74-10019 03

ACCIDENT PREVENTION

Short-range laser obstacle detector
NPO-11856 B74-10101 03

ACCLIMATIZATION

Liquid-cooled liner for helmets
ARC-10534 B74-10249 05

ACOUSTIC ATTENUATION

Noise suppressor
LANGLEY-11141 B74-10261 03

ACOUSTIC PROPERTIES

High-directivity acoustic antenna
ARC-10789 B74-10050 02

ACOUSTICS

Zeros of certain cross products of Bessel functions of fractional order
LEWIS-12221 B74-10012 03

ACTION

Battery activation system
ARC-10832 B74-10056 03

ACTUATORS

Mechanical coupling for high cyclic loading
LEWIS-11690 B74-10001 06
Design criteria monograph for actuators and operators
LEWIS-12264 B74-10061 06
Very high voltage latching relay
LEWIS-12265 B74-10079 01
Piezoelectric relay
GSFC-11627 B74-10089 01
Laser-actuated mechanical device
NPO-13105 B74-10166 03
Laser system to detonate explosive devices
NPO-11743 B74-10194 03

ADENOSINE DIPHOSPHATE (ADP)

Enzymatic regeneration of adenosine triphosphate cofactor
ARC-10837 B74-10057 04

ADENOSINE TRIPHOSPHATE (ATP)

Enzymatic regeneration of adenosine triphosphate cofactor
ARC-10837 B74-10057 04
Improved methods for counting bacteria in physiological fluids
GSFC-11917 B74-10231 05

ADHESIVE BONDING

Plastic covering on airfoil structure provides smooth uninterrupted surface
MSC-12631 B74-10270 08

ADHESIVES

Semipermanent sealing of leaks in high vacuum systems
ARC-10881 B74-10175 04

ADJUSTING

Bidirectional zoom antenna
GSFC-11862 B74-10257 01

AERODYNAMIC CHARACTERISTICS

Computation of aerodynamic interference between lifting surfaces and lift- and cruise-fans
ARC-10833 B74-10113 09
Investigation of exit-velocity stratification effects on jets in a crossflow (STRJET)
LANGLEY-11581 B74-10207 09
Calculation of aerodynamic characteristics of STOL aircraft
ARC-10882 B74-10221 09

AERODYNAMIC CONFIGURATIONS

Computer program for steamtube curvature analysis: Analytical method
LANGLEY-11535 B74-10206 09

AERODYNAMIC DRAG

Probe for measuring turbulent real-time shear-stress waves
ARC-10755 B74-10072 03

AERODYNAMIC FORCES

Suppression of bending motion in elastic bodies
XAC-05632 B74-10070 06

AERODYNAMIC NOISE

High-directivity acoustic antenna
ARC-10789 B74-10050 02

AERODYNAMIC STABILITY

Model optimization using statistical estimation
M-FS-22873 B74-10189 09

AERODYNAMICS

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06

AEROSPACE INDUSTRY

Directory of aerospace safety specialized information sources
LEWIS-12223 B74-10019 03

AIR

Volume measuring system
MSC-13972 B74-10271 03

AIR CONDITIONING EQUIPMENT

Self-regenerating desiccant system
M-FS-23057 B74-10266 07

AIR DUCTS

Noise suppressor
LANGLEY-11141 B74-10261 03

AIR FLOW

Combustion products generating and metering device
GSFC-11095 B74-10036 04
Self-regenerating desiccant system
M-FS-23057 B74-10266 07

AIR INTAKES

Programmed-pressure air supply for positive-pressure breathing system
ARC-10845 B74-10075 05

AIR POLLUTION

Improved high volume air sampler
LEWIS-11644 B74-10080 05
Wavelength-selective, sequential Q-switching laser cavity
LANGLEY-11045 B74-10134 03
Visualization of smoke stack plume
LANGLEY-11675 B74-10208 04
Carbon monoxide detector
M-FS-23090 B74-10268 04

AIR SAMPLING

Combustion products generating and metering device
GSFC-11095 B74-10036 04
Improved high volume air sampler
LEWIS-11644 B74-10080 05

AIR TRAFFIC CONTROL

Traffic control system and method
GSFC-10087 B74-10024 02

AIRCRAFT BRAKES

Antiskid braking system
M-FS-22807 B74-10146 06

AIRCRAFT COMMUNICATION

Traffic control system and method
GSFC-10087 B74-10024 02

AIRCRAFT CONTROL

Thrust vector control for V/STOL aircraft
ARC-10788 B74-10049 06

AIRCRAFT DESIGN

Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow
LEWIS-12178 B74-10129 09

Flight tests of vortex-attenuating splines
LANGLEY-11645 B74-10187 03

Computer program for steamtube curvature analysis: Analytical method
LANGLEY-11535 B74-10206 09

AIRCRAFT FUEL SYSTEMS

Moisture-resistant baffle material for fuel tanks
ARC-10861 B74-10219 04

AIRCRAFT INSTRUMENTS

G-load indicator and warning device for aircraft
ARC-10806 B74-10171 02

Magnetic-heading reference device
LANGLEY-11387 B74-10176 02

Pulse-width-modulated servo valve for autopilot system
LANGLEY-11643 B74-10179 06

AIRCRAFT LAUNCHING DEVICES

Reversed cowl-flap thrust augmentor
ARC-10754 B74-10046 06

Thrust vector control for V/STOL aircraft
ARC-10788 B74-10049 06

AIRCRAFT MODELS

Optical discriminator system
LANGLEY-11580 B74-10139 03

AIRCRAFT PERFORMANCE

Optical discriminator system
LANGLEY-11580 B74-10139 03

AIRCRAFT SAFETY

Traffic control system and method
GSFC-10087 B74-10024 02

Fail-safe fire detection system
LEWIS-12238 B74-10078 02

Short-range laser obstacle detector
NPO-11856 B74-10101 03

AIRCRAFT STABILITY

Suppression of bending motion in elastic bodies
XAC-05632 B74-10070 06

Swashplate feedback control for tilt-rotor aircraft
ARC-10854 B74-10174 06

AIRCRAFT STRUCTURES

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06

Controlled intermittent interfacial bond concept for composite materials
LANGLEY-11628 B74-10264 04

Plastic covering on airfoil structure provides smooth uninterrupted surface
MSC-12631 B74-10270 08

AIRFRAMES

Suppression of bending motion in elastic bodies
XAC-05632 B74-10070 06

ALIGNMENT

Flange design for large-scale modular assembly jigs
MSC-19372 B74-10273 06

Alignment fixture for precision cutting of printed-wiring boards
LANGLEY-11658 B74-10290 01

ALIPHATIC COMPOUNDS

Polymers used to absorb fats and oils: A concept
NPO-11609 B74-10210 05

ALUMINUM

In-process oxidation protection in fluxless brazing or diffusion bonding of aluminum alloys
MSC-14435 B74-10096 04

Explosive welding technique for joining aluminum and steel tubes
MSC-14721 B74-10272 08

ALUMINUM ALLOYS

Addition of silicon improves oxidation resistance of nickel based superalloys
LEWIS-12138 B74-10007 04

In-process oxidation protection in fluxless brazing or diffusion bonding of aluminum alloys
MSC-14435 B74-10096 04

ALUMINUM COATINGS

Inexpensive lightweight mirror
MSC-14615 B74-10155 05

ALUMINUM COMPOUNDS

Process for fabrication of stabilized aluminum phosphate fibers
LANGLEY-11526 B74-10185 08

AMPLIFICATION

Low cost instrumentation amplifier
LEWIS-12222 B74-10015 01

Strain gauge sensitivity improved by using a composite beam
NPO-13170 B74-10297 07

AMPLIFIERS

Low cost instrumentation amplifier
LEWIS-12222 B74-10015 01

AMPLITUDES

Electronic high pass filter
LEWIS-11600 B74-10083 02

ANALOG CIRCUITS

Implementation of a self-controlling heater: A concept
GSFC-11752 B74-10241 06

ANALOG DATA

Continuous Fourier transform system
ARC-10466 B74-10170 02

Synchronized frequency transposer
GSFC-11763 B74-10256 01

ANALOG SIMULATION

Optical communication channel simulator system
GSFC-11877 B74-10258 01

ANALOG TO DIGITAL CONVERTERS

Decimal digit generator for commutated data: A Concept
ARC-10856 B74-10120 01

Anti-multipath digital signal detector
LANGLEY-11379 B74-10137 02

ANALYSIS (MATHEMATICS)

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06

Generalized current distribution rule
LANGLEY-11565 B74-10093 02

Analysis of orbital heat transfer
ARC-10844 B74-10116 03

Computer program for calculating water and steam properties
LEWIS-12206 B74-10123 09

Data summary and computer program for axial-flow pump rotor performance
LEWIS-11920 B74-10127 09

Computer program for calculating velocities and streamlines on mid-channel flow surface of axial or mixed-flow turbomachine
LEWIS-12129 B74-10130 09

Method for remotely sensing turbulence of planetary atmospheres
NPO-13154 B74-10168 03

Eigenfunction solution of damped structural systems: DAMP
NPO-13480 B74-10169 09

Computer program for steamtube curvature analysis: Analytical method
LANGLEY-11535 B74-10206 09

Eigenvalue algorithm based on a combined Sturm sequence and inverse iteration technique (EASI)
NPO-13368 B74-10215 09

Numerical program for analysis of three-dimensional supersonic exhaust flow fields (CHAR 3D)
LANGLEY-11596 B74-10236 09

Combined effects of a converging beam of light and mirror misalignment in michelson interferometry
ARC-10889 B74-10246 03

Volume measuring system
MSC-13972 B74-10271 03

Visualization of smoke stack plume
LANGLEY-11675 B74-10208 04

Micrometeoroid velocity-and-trajectory analyzer
GSFC-11889 B74-10286 01

New polymer systems: Chain extension by dianhydrides
NPO-13046 B74-10077 04

Environmental control and waste management system design concept
LANGLEY-11588 B74-10235 06

Phased-array antenna phase control circuit using frequency multiplication
ERC-10285 B74-10251 01

Variable-beamwidth antennas
GSFC-11760 B74-10041 02

High-directivity acoustic antenna
ARC-10789 B74-10050 02

Improved circularly polarized antenna
ERC-10214 B74-10250 02

Amplitude-steered, pseudophased antenna array
GSFC-11446 B74-10255 01

Bidirectional zoom antenna
GSFC-11862 B74-10257 01

Horn antenna with v-shaped corrugated surface
LANGLEY-11112 B74-10260 01

Low-loss, circularly-polarized dichroic plate
NPO-13171 B74-10283 01

High-efficiency multifrequency feed
GSFC-11909 B74-10288 02

ANTENNA RADIATION PATTERNS

Spacecraft attitude determination by fanscan technique
ARC-10827 B74-10198 02

ANTENNAS

Wireless telemetry system for floating bodies
KSC-10855 B74-10028 06

ANTIFRICTION BEARINGS

Magnetic bearings with combined radial and axial control
GSFC-11551 B74-10131 06

ANTISEPTICS

Iodine generator for disinfecting reclaimed water
MSC-14632 B74-10153 05

ANTISKID DEVICES

Antiskid braking system
M-FS-22807 B74-10146 06

ARC DISCHARGES

Self-protected electrodes limit field-emission current
ERC-10015 B74-10253 01

ARC LAMPS

Casting copper to tungsten for high-power arc lamp cathodes
LEWIS-12169 B74-10011 04

ARGON

Casting copper to tungsten for high-power arc lamp cathodes
LEWIS-12169 B74-10011 04

ARMOR

Controlled intermittent interfacial bond concept for composite materials
LANGLEY-11628 B74-10264 04

ARRAYS

Thermoelastic analysis of solar cell arrays and their material properties
NPO-13458 B74-10301 03

ASSEMBLING

Expandable space frames
ERC-10365 B74-10252 06
Flange design for large-scale modular assembly jigs
MSC-19372 B74-10273 06

ASSEMBLY LANGUAGE

Graphics shadowing analysis
M-FS-21406 B74-10040 09
Marshall information retrieval and display system (MIRADS)
M-FS-22536 B74-10043 09
Generalized curve fit and plotting (GECAP) program
M-FS-22728 B74-10044 09

ASTRONOMY

Digital multichannel photometer
HQ-10791 B74-10200 03

ASTROPHYSICS

Method for remotely sensing turbulence of planetary atmospheres
NPO-13154 B74-10168 03

ATMOSPHERIC COMPOSITION

Extendible probe for atmosphere sampling
ARC-10829 B74-10054 03

ATMOSPHERIC ENTRY

Volume-reflecting dielectric heat shield
ARC-10803 B74-10074 04

ATMOSPHERIC TURBULENCE

Method for remotely sensing turbulence of planetary atmospheres
NPO-13154 B74-10168 03

ATMOSPHERICS

Color-coded area sensitivity maps of photomultipliers
LANGLEY-10320 B74-10259 01

ATOM CONCENTRATION

Calorimetric detection of neutral-atom content of ion beam
LANGLEY-11505 B74-10184 03

ATOMIC MOBILITIES

Long life neutron generator target using deuterium pass-through structure
LEWIS-11866 B74-10063 03

ATTENUATORS

Flight tests of vortex-attenuating splines
LANGLEY-11645 B74-10187 03

ATTITUDE (INCLINATION)

Spacecraft attitude determination by fanscan technique
ARC-10827 B74-10198 02

ATTITUDE CONTROL

Magnetic bearings with combined radial and axial control
GSFC-11551 B74-10131 06
Magnetic-heading reference device
LANGLEY-11387 B74-10176 02
Pulse-width-modulated servo valve for autopilot system
LANGLEY-11643 B74-10179 06

AUDIO EQUIPMENT

Radio-controlled, sound-operated switch
LANGLEY-11641 B74-10143 03

AUDITORY SIGNALS

Radio-controlled, sound-operated switch
LANGLEY-11641 B74-10143 03

AUTOCCLAVING

Fabrication of complex structures or assemblies by hot isostatic pressure (HIP) welding
LEWIS-11490 B74-10124 04

AUTOMATIC CONTROL

Throttleable heat pipe
ARC-10848 B74-10173 03
Swashplate feedback control for tilt-rotor aircraft
ARC-10854 B74-10174 06
Automatic soldering machine
MSC-19401 B74-10193 06
Automated maintenance for complex hybrid systems
NPO-13143 B74-10279 09

AUTOMATIC CONTROL VALVES

Programmed-pressure air supply for positive-pressure breathing system
ARC-10845 B74-10075 05

AUTOMATIC FREQUENCY CONTROL

Minicomputer-controlled frequency generator
NPO-11962 B74-10163 02

AUTOMATIC PILOTS

Magnetic-heading reference device
LANGLEY-11387 B74-10176 02
Pulse-width-modulated servo valve for autopilot system
LANGLEY-11643 B74-10179 06

AUTOMOBILES

Short-range laser obstacle detector
NPO-11856 B74-10101 03
Location of vehicles using AM station broadcasting signals
NPO-13217 B74-10300 02

AXIAL FLOW PUMPS

Data summary and computer program for axial-flow pump rotor performance
LEWIS-11920 B74-10127 09

AXIAL STRAIN

Miniature biaxial strain transducer
LANGLEY-11648 B74-10180 01

AXISYMMETRIC BODIES

Computer program for steamtube curvature analysis: Analytical method
LANGLEY-11535 B74-10206 09

AXISYMMETRIC FLOW

Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow
LEWIS-12178 B74-10129 09

B**BACKGROUND NOISE**

Coaxial anode improves sensitivity of gas radiation counters
GSFC-11492 B74-10229 03

BACTERIA

Improved methods for counting bacteria in physiological fluids
GSFC-11917 B74-10231 05

BACTERICIDES

Polyelectrolytes with high charge density
NPO-11918 B74-10159 04

BACTERIOLOGY

Automated single-slide staining system
LANGLEY-11649 B74-10188 05

BAFFLES

Moisture-resistant baffle material for fuel tanks
ARC-10861 B74-10219 04

BALL BEARINGS

Lightweight, high speed bearing balls: A concept
LEWIS-11087 B74-10013 06

BALLISTICS

Laser-scanning techniques for rapid ballistics identification
NPO-11861 B74-10102 03

BANDPASS FILTERS

High q band-pass resonators utilizing composite band-stop resonator pairs
GSFC-10990 B74-10035 02

BANDWIDTH

Low cost instrumentation amplifier
LEWIS-12222 B74-10015 01

BATTERY CHARGERS

Radioisotope thermal generator (RTG) power conditioner
LANGLEY-11313 B74-10022 03
Solar array deployment from a spinning spacecraft
ARC-10787 B74-10048 06
Battery activation system
ARC-10832 B74-10056 03

BEARING (DIRECTION)

Bidirectional zoom antenna
GSFC-11862 B74-10257 01

BEARINGS

Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)
LEWIS-11930 B74-10016 04
Computer program for flexible rotor dynamics analysis
LEWIS-12153 B74-10084 09
Design criteria monograph for valve components
LEWIS-12327 B74-10087 06
Magnetic bearings with combined radial and axial control
GSFC-11551 B74-10131 06

- Improved magnetic suspension technique
GSFC-11079 874-10254 03
- BENDING**
Suppression of bending motion in elastic bodies
XAC-05632 874-10070 06
- BESSEL FUNCTIONS**
Zeros of certain cross products of Bessel functions of fractional order
LEWIS-12221 874-10012 03
- BINARY MIXTURES**
Binary alloys for refractory-metal brazing
LEWIS-12184 874-10125 08
- BIOASSAY**
Methods for improved resolution of flow electrophoresis cells
M-FS-22223 874-10032 04
Improved methods for counting bacteria in physiological fluids
GSFC-11917 874-10231 05
Micro-organism distribution sampling for bioassays
LANGLEY-10789 874-10289 05
- BIOCHEMISTRY**
Enzymatic regeneration of adenosine triphosphate cofactor
ARC-10837 874-10057 04
Polyelectrolytes with high charge density
NPO-11918 874-10159 04
- BIOINSTRUMENTATION**
Automated monitoring of recovered water quality
LANGLEY-11203 874-10029 05
Bio-isolated DC operational amplifier
ARC-10596 874-10112 01
Thermistor holder for skin-temperature measurements
ARC-10855 874-10119 05
Finger recording electrode system for electrical impedance plethysmograph
ARC-10816 874-10172 05
Reference apparatus for medical ultrasonic transducer
ARC-10753 874-10197 01
In vivo measurement of mechanical impedance of bone
ARC-10857 874-10245 05
- BIOLOGICAL EFFECTS**
In vivo measurement of mechanical impedance of bone
ARC-10857 874-10245 05
- BIOLUMINESCENCE**
Improved methods for counting bacteria in physiological fluids
GSFC-11917 874-10231 05
- BIOTELEMETRY**
Time-control system for communication between data-collection and orbiting
GSFC-11182 874-10088 02
Compact telemetry package for remote monitoring of neutron responses in animals
NPO-11887 874-10103 05
Heart-rate pulse-shift detector
ARC-10729 874-10196 01
- BLADES**
Computer program for calculating velocities and streamlines on mid-channel flow surface of axial or mixed-flow turbomachine
LEWIS-12129 874-10130 09
- BLOOD**
Automated drug identification system
NPO-13063 874-10213 05
- Improved methods for counting bacteria in physiological fluids
GSFC-11917 874-10231 05
- BLOOD PRESSURE**
Compact telemetry package for remote monitoring of neutron responses in animals
NPO-11887 874-10103 05
- BLOWERS**
Data summary and computer program for axial-flow pump rotor performance
LEWIS-11920 874-10127 09
- BOARDS (PAPER)**
Alignment fixture for precision cutting of printed-wiring boards
LANGLEY-11658 874-10290 01
- BODY FLUIDS**
Liquid sample processor
NPO-13136 874-10278 05
- BODY TEMPERATURE**
Compact telemetry package for remote monitoring of neutron responses in animals
NPO-11887 874-10103 05
- BONDING**
Glass fiber addition strengthens low-density ablative compositions
LANGLEY-11288 874-10027 04
Fabrication of complex structures or assemblies by hot isostatic pressure (HIP) welding
LEWIS-11490 874-10124 04
Controlled intermittent interfacial bond concept for composite materials
LANGLEY-11628 874-10264 04
New insulation attachment method eliminates compatibility bondline stresses
MSC-12615 874-10269 07
- BONES**
In vivo measurement of mechanical impedance of bone
ARC-10857 874-10245 05
- BORON**
Radiation hardening of metal-oxide semiconductor (MOS) devices by boron
GSFC-11425 874-10026 01
- BOROSILICATE GLASS**
Glass fiber addition strengthens low-density ablative compositions
LANGLEY-11288 874-10027 04
Low-temperature electrostatic silicon-to-silicon seals using sputtered borosilicate glass
LANGLEY-11589 874-10263 08
- BOUNDARY LAYER FLOW**
Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow
LEWIS-12178 874-10129 09
- BOUNDARY LAYER SEPARATION**
Computer program for steamtube curvature analysis: Analytical method
LANGLEY-11535 874-10206 09
- BRAKES (FOR ARRESTING MOTION)**
Brake for rollable platform
ARC-10512 874-10045 06
Antiskid braking system
M-FS-22807 874-10146 06
- BRAZING**
In-process oxidation protection in fluxless brazing or diffusion bonding of aluminum alloys
MSC-14435 874-10096 04
Binary alloys for refractory-metal brazing
LEWIS-12184 874-10125 08
- BREATHING APPARATUS**
Silver oxide sorbent for carbon dioxide
ARC-10797 874-10053 04
Programmed-pressure air supply for positive-pressure breathing system
ARC-10845 874-10075 05
- BRITTLE MATERIALS**
Fabrication of complex structures or assemblies by hot isostatic pressure (HIP) welding
LEWIS-11490 874-10124 04
- BRITTLENESS**
High-strength alloy with resistance to hydrogen-environment embrittlement
M-FS-19234 874-10265 04
- BUCKLING**
Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)
LANGLEY-11199 874-10203 09
Computer program for stress, stability, and vibration of complex branched shells of revolution: BOSOR 4
LANGLEY-11209 874-10205 09

C

- CALIBRATING**
Three-point bridge calibration with one resistor
ARC-10762 874-10047 01
Compact source of soft X-rays
HQ-10732 874-10232 03
- CAMERAS**
Vertical copy camera system provides photographs from erts-1 imagery
LEWIS-12140 874-10009 07
Viewgraph preparation made easier
LANGLEY-11612 874-10094 03
Optical discriminator system
LANGLEY-11580 874-10139 03
- CAMS**
Programmed-pressure air supply for positive-pressure breathing system
ARC-10845 874-10075 05
- CANCER**
A high yield neutron target
LEWIS-12058 874-10066 03
Polyelectrolytes with high charge density
NPO-11918 874-10159 04
- CAPACITANCE**
Improved capacitance multiplier circuit
NPO-11948 874-10162 02
- CAPACITORS**
Thin-film temperature sensor
NPO-11775 874-10100 01
Improved fabrication of electrolytic capacitors
M-FS-23133 874-10294 01
- CAPILLARY FLOW**
Liquid-cooled liner for helmets
ARC-10534 874-10249 05
- CARBON**
Graphite ionization vacuum gauge
LANGLEY-11338 874-10136 03
- CARBON DIOXIDE REMOVAL**
Silver oxide sorbent for carbon dioxide
ARC-10797 874-10053 04
- CARBON MONOXIDE**
Carbon monoxide detector
M-FS-23090 874-10268 04

CARBON STEELS

Lightweight, high speed bearing balls:
A concept
LEWIS-11087 B74-10013 06

CASSEGRAIN ANTENNAS

Variable-beamwidth antennas
GSFC-11760 B74-10041 02

CASTING

Casting copper to tungsten for high-power arc lamp cathodes
LEWIS-12169 B74-10011 04
Control of elasticity in cast elastomeric shock/vibration isolators
KSC-10850 B74-10039 07

CATHODE RAY TUBES

Graphics shadowing analysis
M-FS-21406 B74-10040 09

CATHODES

Casting copper to tungsten for high-power arc lamp cathodes
LEWIS-12169 B74-10011 04
Self-protected electrodes limit field-emission current
ERC-10015 B74-10253 01

CAVITATION FLOW

Process to restore obliterated serial numbers on metal surfaces
LEWIS-12085 B74-10020 07

CDC COMPUTERS

Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)
LANGLEY-11199 B74-10203 09

CDC 3600 COMPUTER

Computer program for calculating water and steam properties
LEWIS-12206 B74-10123 09

CDC 6000 SERIES COMPUTERS

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06
Computer program for structural analysis of layered orthotropic ring-stiffened shells of revolution (SALORS): Linear stress analysis option
LANGLEY-11569 B74-10186 09

Computer program for stresses and buckling of heated composite-stiffened panels and other structures (BUCLASP 3)
LANGLEY-11533 B74-10204 09

Computer program for stress, stability, and vibration of complex branched shells of revolution: BOSOR 4
LANGLEY-11209 B74-10205 09

Computer program for steamtube curvature analysis: Analytical method
LANGLEY-11535 B74-10206 09

Investigation of exit-velocity stratification effects on jets in a crossflow (STRJET)
LANGLEY-11581 B74-10207 09

Numerical program for analysis of three-dimensional supersonic exhaust flow fields (CHAR 3D)
LANGLEY-11596 B74-10236 09

CDC 6600 COMPUTER

Computer program for calculating water and steam properties
LEWIS-12206 B74-10123 09

CENTRAL PROCESSING UNITS

Modular digital computer system design
M-FS-22935 B74-10034 09

CENTRIFUGAL COMPRESSORS

Computer program for predicting off-design performance of centrifugal compressors
LEWIS-12186 B74-10067 09

CENTRIFUGAL PUMPS

Design criteria monograph on centrifugal flow turbopumps
LEWIS-12346 B74-10228 06

CENTRIFUGING

Two-phase, passive separator-and-filter assembly
LANGLEY-10976 B74-10133 04

CERAMICS

Process for fabrication of stabilized aluminum phosphate fibers
LANGLEY-11526 B74-10185 08
High-temperature tensile tester for ceramics
ARC-10822 B74-10244 04

CHARGED PARTICLES

Particle impact location detector
GSFC-11829 B74-10230 03
Improved channel multiplier for radiation-and-particle detectors
NPO-12128 B74-10275 03

CHECKOUT

FORTAN automatic code evaluation system (FACES)
M-FS-22910 B74-10190 09

CHEMICAL ANALYSIS

Liquid sample processor
NPO-13136 B74-10278 05

CHEMICAL CLEANING

In-process oxidation protection in fluxless brazing or diffusion bonding of aluminum alloys
MSC-14435 B74-10096 04

CHEMICAL STERILIZATION

Iodine generator for disinfecting reclaimed water
MSC-14632 B74-10153 05

CHEMICAL TESTS

Automated monitoring of recovered water quality
LANGLEY-11203 B74-10029 05

CHEMILUMINESCENCE

Automated monitoring of recovered water quality
LANGLEY-11203 B74-10029 05

CHROMATOGRAPHY

Automated drug identification system
NPO-13063 B74-10213 05

CHROMIUM

Commercially available black chrome is an effective solar collector coating
LEWIS-12159 B74-10121 04

CIRCUIT BOARDS

Improved circuit-board interconnectors
MSC-12661 B74-10239 01

CIRCUIT PROTECTION

Self-healing fuse
LEWIS-11964 B74-10004 02
Self-protecting solid state isolated switch
LEWIS-12268 B74-10069 01

CIRCUITS

Low cost instrumentation amplifier
LEWIS-12222 B74-10015 01
Low-distortion receiver for bilevel, baseband PCM waveforms
MSC-14557 B74-10025 02
Three-point bridge calibration with one resistor
ARC-10762 B74-10047 01

Electrometer system measures nanoamps at high voltage
LEWIS-12267 B74-10064 01
Self-protecting solid state isolated switch
LEWIS-12268 B74-10069 01
Electronic high pass filter
LEWIS-11600 B74-10083 02
Generalized current distribution rule
LANGLEY-11565 B74-10093 02
Pocket-size microwave radiation hazard detector
NPO-11461 B74-10097 02
Frequency discriminator/phase detector
NPO-11515 B74-10098 02
Decimal digit generator for commutated data: A Concept
ARC-10856 B74-10120 01
Improved capacitance multiplier circuit
NPO-11948 B74-10162 02
Advanced-priority interrupt module
NPO-13067 B74-10165 02
Wide deviation phase modulator
LANGLEY-11607 B74-10178 02
Reduction of quantization error in measurement of frequency
MSC-14649 B74-10191 02
Heart-rate pulse-shift detector
ARC-10729 B74-10196 01
Digital multichannel photometer
HQ-10791 B74-10200 03
Phased-array antenna phase control circuit using frequency multiplication
ERC-10285 B74-10251 01
Digital second-order phase-locked loop
NPO-11905 B74-10274 01
Reliability data for electronic and electromechanical components: A report
NPO-13153 B74-10280 01

CIRCULAR POLARIZATION
Improved circularly polarized antenna
ERC-10214 B74-10250 02
Low-loss, circularly-polarized dichroic plate
NPO-13171 B74-10283 01

CLAMPS
A band clamp with a spring toggle lever
MSC-14736 B74-10240 07

CLINICAL MEDICINE
Automated single-slide staining system
LANGLEY-11649 B74-10188 05
Automated drug identification system
NPO-13063 B74-10213 05

CLOSED CIRCUIT TELEVISION
Closed-circuit-television welding-electrode guidance system
M-FS-23026 B74-10150 02

CLOSED CYCLES
Digital second-order phase-locked loop
NPO-11905 B74-10274 01

CLOTHING
Liquid-cooled liner for helmets
ARC-10534 B74-10249 05

COATINGS
Commercially available black chrome is an effective solar collector coating
LEWIS-12159 B74-10121 04
Metallized polymeric foam material
ARC-10860 B74-10218 04

COAXIAL CABLES
Stable group delay cable
NPO-13138 B74-10295 01

COBALT ALLOYS
Cobalt base superalloy has outstanding properties up to 1478 K (2200 F)
LEWIS-12089 B74-10081 03

COBOL

Marshall information retrieval and display system (MIRADS)
M-FS-22536 B74-10043 09

COLLIMATORS

Variable-beamwidth antennas
GSFC-11760 B74-10041 02
Acoustic-optic deflector telescope
M-FS-23107 B74-10293 03

COLLISION AVOIDANCE

Short-range laser obstacle detector
NPO-11856 B74-10101 03

COLOR

Color-coded area sensitivity maps of photomultipliers
LANGLEY-10320 B74-10259 01

COMBUSTION PRODUCTS

Combustion products generating and metering device
GSFC-11095 B74-10036 04

COMBUSTION STABILITY

Polymer compositions suitable for use in enriched oxygen atmospheres
MSC-14618 B74-10154 04
Flame resistant elastic elastomeric fiber
MSC-14331 B74-10157 04

COMMUNICATION EQUIPMENT

Traffic control system and method
GSFC-10087 B74-10024 02
Variable-beamwidth antennas
GSFC-11760 B74-10041 02
Very high voltage latching relay
LEWIS-12265 B74-10079 01
Anti-multipath digital signal detector
LANGLEY-11379 B74-10137 02

COMMUTATION

Decimal digit generator for commutated data: A Concept
ARC-10856 B74-10120 01

COMPARATOR CIRCUITS

Synchronized frequency transposer
GSFC-11763 B74-10256 01

COMPARATORS

Improved nondispersive infrared analyzer
ARC-10802 B74-10243 03

COMPASS (PROGRAMMING LANGUAGE)

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06
Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)
LANGLEY-11199 B74-10203 09

COMPENSATORS

Temperature compensation of digital inertial sensors
NPO-13044 B74-10106 02
Dynamic polarization compensating system for optical communications receiver
GSFC-11782 B74-10182 03
Digital second-order phase-locked loop
NPO-11905 B74-10274 01

COMPONENTS

Flange design for large-scale modular assembly jigs
MSC-19372 B74-10273 06

COMPOSITE MATERIALS

Criteria for selecting resin matrices for improved composite strength
LEWIS-12057 B74-10005 04

Soft, thermally conductive material
LANGLEY-10850 B74-10132 04
Pressure application technique for high-temperature composite fabrication
LANGLEY-11601 B74-10141 08
Advanced fiber-composite hybrids--A new structural material
LEWIS-12118 B74-10247 04
Advanced tungsten fiber-reinforced nickel superalloy
LEWIS-12394 B74-10248 04
Depositing spacing layers on magnetic film with liquid phase epitaxy
LANGLEY-11528 B74-10262 01
Controlled intermittent interfacial bond concept for composite materials
LANGLEY-11628 B74-10264 04

COMPOSITE STRUCTURES

High strength, wire-reinforced electroformed structures
LEWIS-12087 B74-10018 08

COMPOSITION (PROPERTY)

Micrometeoroid velocity-and-trajectory analyzer
GSFC-11889 B74-10286 01

COMPRESSED AIR

Therapeutic hand-exercising device with cycling pressure valve
LANGLEY-11579 B74-10140 05
Ignition of sounding rocket motors with hand-pumped air
LANGLEY-11152 B74-10202 03

COMPRESSIBLE FLOW

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06
Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow
LEWIS-12178 B74-10129 09

COMPRESSING

Accurate thickness measurement of easily compressed materials
ARC-10551 B74-10111 04
Pressure application technique for high-temperature composite fabrication
LANGLEY-11601 B74-10141 08

COMPRESSOR EFFICIENCY

Computer program for predicting off-design performance of centrifugal compressors
LEWIS-12186 B74-10067 09

COMPRESSOR ROTORS

Data summary and computer program for axial-flow pump rotor performance
LEWIS-11920 B74-10127 09

COMPRESSORS

A new nickel-base wrought superalloy for applications up to 1033 K (1400 F)
LEWIS-11827 B74-10002 04

COMPUTER DESIGN

Modular digital computer system design
M-FS-22935 B74-10034 09

COMPUTER GRAPHICS

Graphics shadowing analysis
M-FS-21406 B74-10040 09
Generalized curve fit and plotting (GECAP) program
M-FS-22728 B74-10044 09

COMPUTER PROGRAMS

Design standards for low-profile flanges
M-FS-22708 B74-10033 09

Computer program for spacecraft-booster separation spring selection; set composition, and location determination
GSFC-11616 B74-10037 09
Graphics shadowing analysis
M-FS-21406 B74-10040 09
Marshall information retrieval and display system (MIRADS)
M-FS-22536 B74-10043 09
Generalized curve fit and plotting (GECAP) program
M-FS-22728 B74-10044 09
Measurement of temperature profiles in hot gases and flames
LEWIS-12055 B74-10060 03
Computer program for predicting off-design performance of centrifugal compressors
LEWIS-12186 B74-10067 09

Computer program for flexible rotor dynamics analysis
LEWIS-12153 B74-10084 09

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06

Computation of aerodynamic interference between lifting surfaces and lift- and cruise-fans
ARC-10833 B74-10113 09

Computer program for calculating water and steam properties
LEWIS-12206 B74-10123 09

Data summary and computer program for axial-flow pump rotor performance
LEWIS-11920 B74-10127 09

Computer program for calculating critical speeds of rotating shafts
LEWIS-11910 B74-10128 09

Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow
LEWIS-12178 B74-10129 09

Computer program for calculating velocities and streamlines on mid-channel flow surface of axial or mixed-flow turbomachine
LEWIS-12129 B74-10130 09

Space ultrareliable modular computer (SUMC) instruction simulator
M-FS-22697 B74-10145 09
Separation dynamics of S-II derivative launch vehicle
M-FS-24325 B74-10151 06

Eigenfunction solution of damped structural systems: DAMP
NPO-13480 B74-10169 09

Computer program for structural analysis of layered orthotropic ring-stiffened shells of revolution (SALORS): Linear stress analysis option
LANGLEY-11569 B74-10186 09

Model optimization using statistical estimation
M-FS-22873 B74-10189 09

Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)
LANGLEY-11199 B74-10203 09

Computer program for stresses and buckling of heated composite-stiffened panels and other structures (BUCLASP 3)
LANGLEY-11533 B74-10204 09

- Computer program for stress, stability, and vibration of complex branched shells of revolution: BOSOR 4
 LANGLEY-11209 874-10205 09
- Computer program for steamtube curvature analysis: Analytical method
 LANGLEY-11535 874-10206 09
- Investigation of exit-velocity stratification effects on jets in a crossflow (STRJET)
 LANGLEY-11581 874-10207 09
- Eigenvalue algorithm based on a combined sturm sequence and inverse iteration technique (EASI)
 NPO-13368 874-10215 09
- Calculation of aerodynamic characteristics of STOL aircraft
 ARC-10882 874-10221 09
- Computerized logic design of digital circuits
 M-FS-22401 874-10225 09
- Numerical program for analysis of three-dimensional supersonic exhaust flow fields (CHAR 3D)
 LANGLEY-11596 874-10236 09
- Thermoelastic analysis of solar cell arrays and their material properties
 NPO-13458 874-10301 03
- COMPUTER STORAGE DEVICES**
 Modular digital computer system design
 M-FS-22935 874-10034 09
- High-speed fault-tolerant telemetry/computer interface
 NPO-13139 874-10296 02
- COMPUTER TECHNIQUES**
 Facility for testing solar cells
 NPO-11761 874-10099 02
- COMPUTERIZED DESIGN**
 Design standards for low-profile flanges
 M-FS-22708 874-10033 09
- Computerized logic design of digital circuits
 M-FS-22401 874-10225 09
- COMPUTERIZED SIMULATION**
 Antiskid braking system
 M-FS-22807 874-10146 06
- COMPUTERS**
 Space ultrareliable modular computer (SUMC) instruction simulator
 M-FS-22697 874-10145 09
- CONDENSATES**
 Heat pipe with hot gas reservoir
 ARC-10847 874-10216 03
- CONDUCTION BANDS**
 Efficiency increased in new solar cell: A Concept
 LANGLEY-11174 874-10090 01
- CONNECTORS**
 Mechanical coupling for high cyclic loading
 LEWIS-11690 874-10001 06
- Pocket gauge for checking insert clocking of multipin circular connectors
 NPO-11924 874-10160 01
- Artificial limb connection
 KSC-10833 874-10183 05
- CONSTRUCTION**
 Bolt installation tool for tightening large nuts and bolts
 NPO-13059 874-10164 07
- Expandable space frames
 ERC-10365 874-10252 06
- New insulation attachment method eliminates compatibility bondline stresses
 MSC-12615 874-10269 07
- CONSTRUCTION MATERIALS**
 Thermally-stable, syntactic pyrrone foams
 LANGLEY-11325 874-10135 06
- Holographic evaluation of fatigue cracks by a compressive stress (HYSTERESIS) technique
 MSC-14555 874-10156 06
- CONTAMINATION**
 Automated monitoring of recovered water quality
 LANGLEY-11203 874-10029 05
- CONTROL SURFACES**
 Control vane for engine exhaust flow
 LANGLEY-11570 874-10138 06
- CONTROL VALVES**
 Design criteria monograph for pressure regulators, relief valves, check valves, burst disks, and explosive valves
 LEWIS-12168 874-10010 07
- Shutoff and throttling valve
 NPO-11951 874-10105 07
- CONTROLLED ATMOSPHERES**
 Spacecraft oxygen recovery system
 ARC-10868 874-10220 05
- Environmental control and waste management system design concept
 LANGLEY-11588 874-10235 06
- CONTROLLERS**
 Heat-transfer thermal switch
 LANGLEY-11232 874-10092 06
- CONVERGENCE**
 Combined effects of a converging beam of light and mirror misalignment in michelson interferometry
 ARC-10889 874-10246 03
- COOLING SYSTEMS**
 Improved thermal isolation for superconducting magnet systems
 NPO-11875 874-10158 02
- Electrostatically controlled heat shutter
 NPO-11942 874-10161 03
- Metallized polymeric foam material
 ARC-10860 874-10218 04
- Liquid-cooled liner for helmets
 ARC-10534 874-10249 05
- Self-regenerating desiccant system
 M-FS-23057 874-10266 07
- COORDINATION**
 High-speed fault-tolerant telemetry/computer interface
 NPO-13139 874-10296 02
- COPOLYMERIZATION**
 Polyelectrolytes with high charge density
 NPO-11918 874-10159 04
- COPPER**
 Casting copper to tungsten for high-power arc lamp cathodes
 LEWIS-12169 874-10011 04
- CORROSION**
 Valve degradation detector
 ARC-10850 874-10117 03
- CORRUGATING**
 Horn antenna with v-shaped corrugated surface
 LANGLEY-11112 874-10260 01
- COUNTERFLOW**
 Methods for improved resolution of flow electrophoresis cells
 M-FS-22223 874-10032 04
- COUNTING**
 Improved methods for counting bacteria in physiological fluids
 GSFC-11917 874-10231 05
- COUNTING CIRCUITS**
 Computerized logic design of digital circuits
 M-FS-22401 874-10225 09
- COUPLINGS**
 Mechanical coupling for high cyclic loading
 LEWIS-11690 874-10001 06
- Design criteria monograph on turbopump shafts and couplings
 LEWIS-12204 874-10014 07
- COVERINGS**
 Plastic covering on airfoil structure provides smooth uninterrupted surface
 MSC-12631 874-10270 08
- COWLINGS**
 Reversed cowl-flap thrust augmentor
 ARC-10754 874-10046 06
- CRACKS**
 Holographic evaluation of fatigue cracks by a compressive stress (HYSTERESIS) technique
 MSC-14555 874-10156 06
- Semipermanent sealing of leaks in high vacuum systems
 ARC-10881 874-10175 04
- CRITERIA**
 Design criteria monograph for valve components
 LEWIS-12327 874-10087 06
- Design criteria monograph for valve assemblies
 LEWIS-12332 874-10227 06
- Design criteria monograph on centrifugal flow turbopumps
 LEWIS-12346 874-10228 06
- CRITICAL VELOCITY**
 Computer program for calculating critical speeds of rotating shafts
 LEWIS-11910 874-10128 09
- CROSS COUPLING**
 Low-loss, circularly-polarized dichroic plate
 NPO-13171 874-10283 01
- CROSS FLOW**
 Investigation of exit-velocity stratification effects on jets in a crossflow (STRJET)
 LANGLEY-11581 874-10207 09
- CRYOGENIC FLUIDS**
 Improved thermal isolation for superconducting magnet systems
 NPO-11875 874-10158 02
- CRYSTAL GROWTH**
 Improved epitaxial process for fabricating silicon carbide semiconductor devices
 LEWIS-12094 874-10017 04
- CRYSTAL STRUCTURE**
 Improved epitaxial process for fabricating silicon carbide semiconductor devices
 LEWIS-12094 874-10017 04
- CURRENT AMPLIFIERS**
 Bio-isolated DC operational amplifier
 ARC-10596 874-10112 01
- CURRENT DISTRIBUTION**
 Generalized current distribution rule
 LANGLEY-11565 874-10093 02
- CURRENT REGULATORS**
 Self-healing fuse
 LEWIS-11964 874-10004 02
- Radioisotope thermal generator (RTG) power conditioner
 LANGLEY-11313 874-10022 03
- CURVE FITTING**
 Generalized curve fit and plotting (GECAP) program
 M-FS-22728 874-10044 09

CURVED PANELS

Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)
 LANGLEY-11199 874-10203 09
 Computer program for stresses and buckling of heated composite-stiffened panels and other structures (BUCLASP 3)
 LANGLEY-11533 874-10204 09

CUSHIONS

Cushion module for stowing electronic equipment
 ARC-10779 874-10073 04

CUTTERS

Precision glasscutter
 LANGLEY-11604 874-10031 07

CUTTING

Alignment fixture for precision cutting of printed-wiring boards
 LANGLEY-11658 874-10290 01

CYCLIC LOADS

Mechanical coupling for high cyclic loading
 LEWIS-11690 874-10001 06

D**DAMPING**

Eigenfunction solution of damped structural systems: DAMP
 NPO-13480 874-10169 09

DAMPING TESTS

Fluid dynamics test method
 NPO-11895 874-10211 03

DATA MANAGEMENT

Marshall information retrieval and display system (MIRADS)
 M-FS-22536 874-10043 09
 Remote sunfall monitor: A concept
 M-FS-22943 874-10149 03

DATA PROCESSING EQUIPMENT

Data processor with conditionally supplied clock signals
 GSFC-10975 874-10021 02
 Modular digital computer system design
 M-FS-22935 874-10034 09
 Automated maintenance for complex hybrid systems
 NPO-13143 874-10279 09
 High-speed fault-tolerant telemetry/computer interface
 NPO-13139 874-10296 02

DATA SAMPLING

Anti-multipath digital signal detector
 LANGLEY-11379 874-10137 02

DATA TRANSMISSION

Time-control system for communication between data-collection and orbiting
 GSFC-11182 874-10088 02

DECONTAMINATION

Polymers used to absorb fats and oils: A concept
 NPO-11609 874-10210 05

DEFECTS

Guidebook of nondestructive evaluation techniques for materials and structures
 LEWIS-12272 874-10122 04

DEFLECTORS

Acoustic-optic deflector telescope
 M-FS-23107 874-10293 03

DEFORMATION

Design standards for low-profile flanges
 M-FS-22708 874-10033 09

DEGASSING

Two-phase, passive separator-and-filter assembly
 LANGLEY-10976 874-10133 04

DENTISTRY

New tooth enamel from brushite crystals
 ERC-10338 874-10199 05

DEPOSITION

Fabrication of thick structures by sputtering
 LEWIS-12331 874-10126 08
 Depositing spacing layers on magnetic film with liquid phase epitaxy
 LANGLEY-11528 874-10262 01

DESCENT

Emergency descent device
 M-FS-23074 874-10226 05

DESICCATORS

Self-regenerating desiccant system
 M-FS-23057 874-10266 07

DESTRUCTIVE TESTS

Economical technique for fragmentation testing
 ARC-10792 874-10052 04
 Apparatus for monitoring linear explosive performance
 LANGLEY-10800 874-10201 04
 High-temperature tensile tester for ceramics
 ARC-10822 874-10244 04

DETECTION

Detection of cracks in surface insulation
 MSC-14187 874-10095 04
 Wavelength-selective, sequential Q-switching laser cavity
 LANGLEY-11045 874-10134 03
 Negative ion spectrometry for detecting nitrated explosives
 NPO-13082 874-10276 02
 DC-to-AC inverter ratio failure detector
 NPO-13160 874-10282 01
 Micrometeoroid composition analyzer
 GSFC-11892 874-10287 01

DETECTORS

Pocket-size microwave radiation hazard detector
 NPO-11461 874-10097 02
 Short-range laser obstacle detector
 NPO-11856 874-10101 03

DETONATION

Laser system to detonate explosive devices
 NPO-11743 874-10194 03

DETONATORS

Apparatus for monitoring linear explosive performance
 LANGLEY-10800 874-10201 04

DEUTERONS

Long life neutron generator target using deuterium pass-through structure
 LEWIS-11866 874-10063 03
 A high yield neutron target
 LEWIS-12058 874-10066 03

DIAGNOSIS

Automated single-slide staining system
 LANGLEY-11649 874-10188 05
 Automated drug identification system
 NPO-13063 874-10213 05

DICHROISM

Low-loss, circularly-polarized dichroic plate
 NPO-13171 874-10283 01

DIELECTRIC POLARIZATION

Piezoelectric relay
 GSFC-11627 874-10089 01

DIELECTRICS

High voltage solid-state relay
 LEWIS-12096 874-10006 01
 Volume-reflecting dielectric heat shield
 ARC-10803 874-10074 04

DIFFUSION

In-process oxidation protection in fluxless brazing or diffusion bonding of aluminum alloys
 MSC-14435 874-10096 04

DIGITAL COMPUTERS

Error-correcting codes for high-speed digital computers
 M-FS-22887 874-10147 02

DIGITAL DATA

Data summary and computer program for axial-flow pump rotor performance
 LEWIS-11920 874-10127 09
 Anti-multipath digital signal detector
 LANGLEY-11379 874-10137 02

DIGITAL FILTERS

Low-distortion receiver for bilevel, baseband PCM waveforms
 MSC-14557 874-10025 02

DIGITAL SYSTEMS

Modular digital computer system design
 M-FS-22935 874-10034 09
 Dynamic polarization compensating system for optical communications receiver
 GSFC-11782 874-10182 03
 Digital multichannel photometer
 HQ-10791 874-10200 03
 Computerized logic design of digital circuits
 M-FS-22401 874-10225 09
 Digital second-order phase-locked loop
 NPO-11905 874-10274 01

DIGITAL TECHNIQUES

Micrometeoroid composition analyzer
 GSFC-11892 874-10287 01

DIMENSIONAL MEASUREMENT

Accurate thickness measurement of easily compressed materials
 ARC-10551 874-10111 04

DIODES

Digital multichannel photometer
 HQ-10791 874-10200 03

DIPOLE ANTENNAS

Improved circularly polarized antenna
 ERC-10214 874-10250 02
 Low-loss, circularly-polarized dichroic plate
 NPO-13171 874-10283 01

DIRECTIONAL ANTENNAS

Bidirectional zoom antenna
 GSFC-11862 874-10257 01

DIRECTIONAL CONTROL

Vented vectoring-nozzle for STOL and V/STOL aircraft
 ARC-10839 874-10058 06

DISCRIMINATORS

Frequency discriminator/phase detector
 NPO-11515 874-10098 02

DISEASES

Polymers used to absorb fats and oils: A concept
 NPO-11609 874-10210 05

DISKS (SHAPES)

Full-flow fluid filter
 NPO-13118 874-10277 02

DISPENSERS

Iodine generator for disinfecting reclaimed water
 MSC-14632 874-10153 05

DISPLACEMENT

Volume measuring system
MSC-13972 B74-10271 03

DISPLAY DEVICES

Improved epitaxial process for fabricating silicon carbide semiconductor devices
LEWIS-12094 B74-10017 04

Graphics shadowing analysis
M-FS-21406 B74-10040 09

Recorder/processor apparatus
GSFC-11553 B74-10042 03

Marshall information retrieval and display system (MIRADS)
M-FS-22536 B74-10043 09

Generalized curve fit and plotting (GECAP) program
M-FS-22728 B74-10044 09

G-load indicator and warning device for aircraft
ARC-10806 B74-10171 02

Visualization of smoke stack plume
LANGLEY-11675 B74-10208 04

Ultrasonic scanner for footprint identification
NPO-13055 B74-10212 03

DISTRIBUTORS

High-voltage distributors
GSFC-11849 B74-10242 01

DOPPLER EFFECT

Traffic control system and method
GSFC-10087 B74-10024 02

Digital second-order phase-locked loop
NPO-11905 B74-10274 01

DOSIMETERS

Calorimetric detection of neutral-atom content of ion beam
LANGLEY-11505 B74-10184 03

DRAG MEASUREMENT

Probe for measuring turbulent real-time shear-stress waves
ARC-10755 B74-10072 03

DRUGS

Automated drug identification system
NPO-13063 B74-10213 05

Liquid sample processor
NPO-13136 B74-10278 05

DUCTED BODIES

Computer program for steamtube curvature analysis: Analytical method
LANGLEY-11535 B74-10206 09

DUCTED FAN ENGINES

Noise suppressor
LANGLEY-11141 B74-10261 03

DYNAMIC CHARACTERISTICS

Computer program for flexible rotor dynamics analysis
LEWIS-12153 B74-10084 09

Separation dynamics of S-II derivative launch vehicle
M-FS-24325 B74-10151 06

Eigenfunction solution of damped structural systems: DAMP
NPO-13480 B74-10169 09

DYNAMIC RESPONSE

Improved capacitance multiplier circuit
NPO-11948 B74-10162 02

DYNAMIC STABILITY

Implementation of a self-controlling heater: A concept
GSFC-11752 B74-10241 06

DYNAMIC STRUCTURAL ANALYSIS

Dynamic transformation method
M-FS-22848 B74-10076 06

Model optimization using statistical estimation
M-FS-22873 B74-10189 09

DYNAMOMETERS

Dynamometer for measuring machining forces in two perpendicular directions
M-FS-22899 B74-10148 07

E**EFFLUENTS**

Visualization of smoke stack plume
LANGLEY-11675 B74-10208 04

EIGENVALUES

Eigenvalue algorithm based on a combined Sturm sequence and inverse iteration technique (EASI)
NPO-13368 B74-10215 09

EIGENVECTORS

Eigenfunction solution of damped structural systems: DAMP
NPO-13480 B74-10169 09

ELASTIC BENDING

Suppression of bending motion in elastic bodies
XAC-05632 B74-10070 06

ELASTIC DAMPING

Control of elasticity in cast elastomeric shock/vibration isolators
KSC-10850 B74-10039 07

ELASTIC SHELLS

Computer program for structural analysis of layered orthotropic ring-stiffened shells of revolution (SALORS): Linear stress analysis option
LANGLEY-11569 B74-10186 09

ELASTOMERS

Control of elasticity in cast elastomeric shock/vibration isolators
KSC-10850 B74-10039 07

Flame resistant elastic elastomeric fiber
MSC-14331 B74-10157 04

New insulation attachment method eliminates compatibility bondline stresses
MSC-12615 B74-10269 07

ELECTRIC BATTERIES

Radioisotope thermal generator (RTG) power conditioner
LANGLEY-11313 B74-10022 03

Battery activation system
ARC-10832 B74-10056 03

Efficiency increased in new solar cell: A Concept
LANGLEY-11174 B74-10090 01

Facility for testing solar cells
NPO-11761 B74-10099 02

Lead-oxygen closed-loop battery system
M-FS-23059 B74-10267 06

ELECTRIC BRIDGES

Three-point bridge calibration with one resistor
ARC-10762 B74-10047 01

ELECTRIC CHARGE

Micrometeoroid composition analyzer
GSFC-11892 B74-10287 01

ELECTRIC CONNECTORS

Improved circuit-board interconnectors
MSC-12661 B74-10239 01

ELECTRIC CONTROL

Electrostatically controlled heat shutter
NPO-11942 B74-10161 03

ELECTRIC CURRENT

Electrometer system measures nanoamps at high voltage
LEWIS-12267 B74-10064 01

ELECTRIC FILTERS

Electronic high pass filter
LEWIS-11600 B74-10083 02

ELECTRIC GENERATORS

Radioisotope thermal generator (RTG) power conditioner
LANGLEY-11313 B74-10022 03

Magnetic bearings with combined radial and axial control
GSFC-11551 B74-10131 06

ELECTRIC MOTORS

Magnetic bearings with combined radial and axial control
GSFC-11551 B74-10131 06

Improved magnetic suspension technique
GSFC-11079 B74-10254 03

ELECTRIC POWER TRANSMISSION

High-voltage distributors
GSFC-11849 B74-10242 01

ELECTRIC RELAYS

Self-healing fuse
LEWIS-11964 B74-10004 02

High voltage solid-state relay
LEWIS-12096 B74-10006 01

Very high voltage latching relay
LEWIS-12265 B74-10079 01

Piezoelectric relay
GSFC-11627 B74-10089 01

ELECTRIC SWITCHES

Self-healing fuse
LEWIS-11964 B74-10004 02

Self-protecting solid state isolated switch
LEWIS-12268 B74-10069 01

Very high voltage latching relay
LEWIS-12265 B74-10079 01

Radio-controlled, sound-operated switch
LANGLEY-11641 B74-10143 03

ELECTRICAL FAULTS

Self-protected electrodes limit field-emission current
ERC-10015 B74-10253 01

ELECTRICAL GROUNDING

Bio-isolated DC operational amplifier
ARC-10596 B74-10112 01

ELECTRICAL IMPEDANCE

Generalized current distribution rule
LANGLEY-11565 B74-10093 02

ELECTRICAL MEASUREMENT

Electrometer system measures nanoamps at high voltage
LEWIS-12267 B74-10064 01

DC-to-AC inverter ratio failure detector
NPO-13160 B74-10282 01

ELECTRICAL RESISTANCE

Three-point bridge calibration with one resistor
ARC-10762 B74-10047 01

ELECTRO-OPTICS

System for measuring transients in fluid flow
ARC-10852 B74-10217 03

ELECTROCARDIOGRAPHY

Heart-rate pulse-shift detector
ARC-10729 B74-10196 01

ELECTROCHEMICAL CELLS

Carbon monoxide detector
M-FS-23090 B74-10268 04

ELECTRODEPOSITION

High strength, wire-reinforced electroformed structures
LEWIS-12087 B74-10018 08

ELECTRODES

Finger recording electrode system for electrical impedance plethysmograph
ARC-10816 B74-10172 05

ELECTROFORMING

High strength, wire-reinforced
electroformed structures
LEWIS-12087 B74-10018 08

ELECTROLYTES

Battery activation system
ARC-10832 B74-10056 03
Polyelectrolytes with high charge
density
NPO-11918 B74-10159 04

ELECTROLYTIC CELLS

Improved fabrication of electrolytic
capacitors
M-FS-23133 B74-10294 01

ELECTROMAGNETIC RADIATION

Pocket-size microwave radiation hazard
detector
NPO-11461 B74-10097 02

ELECTROMAGNETS

Improved magnetic suspension
technique
GSFC-11079 B74-10254 03

ELECTROMETERS

Electrometer system measures
nanoamps at high voltage
LEWIS-12267 B74-10064 01

ELECTRON BEAM WELDING

Closed-circuit-television welding-elec-
trode guidance system
M-FS-23026 B74-10150 02

ELECTRON BOMBARDMENT

Calorimetric detection of neutral-atom
content of ion beam
LANGLEY-11505 B74-10184 03

ELECTRON CAPTURE

Negative ion spectrometry for detecting
nitrated explosives
NPO-13082 B74-10276 02

ELECTRON EMISSION

Integrated structure vacuum tube: A
Concept
ARC-10445 B74-10110 01
Improved channel multiplier for
radiation-and-particle detectors
NPO-12128 B74-10275 03

ELECTRONIC CONTROL

Self-protecting solid state isolated
switch
LEWIS-12268 B74-10069 01

ELECTRONIC EQUIPMENT

Low cost instrumentation amplifier
LEWIS-12222 B74-10015 01
Cushion module for stowing electronic
equipment
ARC-10779 B74-10073 04
Reliability data for electronic and
electromechanical components: A report
NPO-13153 B74-10280 01
Improved fabrication of electrolytic
capacitors
M-FS-23133 B74-10294 01

ELECTRONIC MODULES

Advanced-priority interrupt module
NPO-13067 B74-10165 02
Depositing spacing layers on magnetic
film with liquid phase epitaxy
LANGLEY-11528 B74-10262 01

ELECTRONIC PACKAGING

Toroidal equipment packaging
ARC-10828 B74-10055 03
Cushion module for stowing electronic
equipment
ARC-10779 B74-10073 04
Microelectronics packaging technique: A
Concept
MSC-19399 B74-10192 01

Improved circuit-board interconnectors
MSC-12661 B74-10239 01
Low-temperature electrostatic
silicon-to-silicon seals using sputtered
borosilicate glass
LANGLEY-11589 B74-10263 08

ELECTRONIC TRANSDUCERS

Improved epitaxial process for fabricating
silicon carbide semiconductor devices
LEWIS-12094 B74-10017 04

ELECTROPHORESIS

Methods for improved resolution of flow
electrophoresis cells
M-FS-22223 B74-10032 04

ELECTROPLATING

Commercially available black chrome is
an effective solar collector coating
LEWIS-12159 B74-10121 04

ELECTROPLETHYSMOGRAPHY

Finger recording electrode system for
electrical impedance plethysmograph
ARC-10816 B74-10172 05

ELECTROSTATIC PROBES

Electrostatically controlled heat shutter
NPO-11942 B74-10161 03

ELECTROSTATICS

Low-temperature electrostatic silicon-
to-silicon seals using sputtered borosilicate
glass
LANGLEY-11589 B74-10263 08

ELLIPTICAL ORBITS

Analysis of orbital heat transfer
ARC-10842 B74-10115 02

EMBRITTLEMENT

Evaluation of test procedures for
hydrogen environment embrittlement
ARC-10919 B74-10222 04

EMERGENCY LIFE SUSTAINING SYSTEMS

Emergency descent device
M-FS-23074 B74-10226 05

ENAMELS

New tooth enamel from brushite
crystals
ERC-10338 B74-10199 05

ENERGY ABSORPTION

Efficiency increased in new solar cell:
A Concept
LANGLEY-11174 B74-10090 01

Commercially available black chrome is
an effective solar collector coating
LEWIS-12159 B74-10121 04

ENERGY CONVERSION

Mechanical solar motor: A concept
M-FS-23062 B74-10292 07

ENERGY STORAGE

Solar array deployment from a spinning
spacecraft
ARC-10787 B74-10048 06
Radioisotope heater
ARC-10791 B74-10051 03
Battery activation system
ARC-10832 B74-10056 03
Efficiency increased in new solar cell:
A Concept
LANGLEY-11174 B74-10090 01
Facility for testing solar
cells
NPO-11761 B74-10099 02

ENGINE DESIGN

Design criteria monograph for pressure
regulators, relief valves, check valves, burst
disks, and explosive valves
LEWIS-12168 B74-10010 07
Design criteria monograph on turbopump
shafts and couplings
LEWIS-12204 B74-10014 07

Control vane for engine exhaust flow
LANGLEY-11570 B74-10138 06

ENGINE PARTS

A new nickel-base wrought superalloy
for applications up to 1033 K (1400 F)
LEWIS-11827 B74-10002 04

Design criteria monograph on turbopump
shafts and couplings
LEWIS-12204 B74-10014 07

Design criteria monograph for actuators
and operators
LEWIS-12264 B74-10061 06

Cobalt base superalloy has outstanding
properties up to 1478 K (2200 F)
LEWIS-12089 B74-10081 03

High strength nickel base alloy, WAZ-16,
for applications up to 2200 F
LEWIS-12270 B74-10082 04

ENVIRONMENTAL CONTROL

Silver oxide sorbent for carbon dioxide
ARC-10797 B74-10053 04
Heat-transfer thermal switch
LANGLEY-11232 B74-10092 06

ENVIRONMENTAL TESTS

Combustion products generating and
metering device
GSFC-11095 B74-10036 04

ENZYMES

Enzymatic regeneration of adenosine
triphosphate cofactor
ARC-10837 B74-10057 04

EPITAXY

Improved epitaxial process for fabricating
silicon carbide semiconductor devices
LEWIS-12094 B74-10017 04
Depositing spacing layers on magnetic
film with liquid phase epitaxy
LANGLEY-11528 B74-10262 01

EPOXY RESINS

Pressure application technique for
high-temperature composite fabrication
LANGLEY-11601 B74-10141 08
Inexpensive lightweight mirror
MSC-14615 B74-10155 05

EQUIPMENT SPECIFICATIONS

Design criteria monograph for actuators
and operators
LEWIS-12264 B74-10061 06

ERROR CORRECTING DEVICES

Error-correcting codes for high-speed
digital computers
M-FS-22887 B74-10147 02

ERRORS

Reduction of quantization error in
measurement of frequency
MSC-14649 B74-10191 02

ESCAPE SYSTEMS

Emergency descent device
M-FS-23074 B74-10226 05

ETCHING

Process to restore obliterated serial
numbers on metal surfaces
LEWIS-12085 B74-10020 07

A method for polycrystalline silicon
delineation applicable to a double-diffused
MOS transistor
LANGLEY-11536 B74-10234 01

EUTECTIC ALLOYS

Binary alloys for refractory-metal
brazing
LEWIS-12184 B74-10125 08

EVACUATING (TRANSPORTATION)

Emergency descent device
M-FS-23074 B74-10226 05

EVALUATION

Space ultrareliable modular computer (SUMC) instruction simulator
M-FS-22697 B74-10145 09
Remote sunfall monitor: A concept
M-FS-22943 B74-10149 03
FORTRAN automatic code evaluation system (FACES)
M-FS-22910 B74-10190 09
Apparatus for monitoring linear explosive performance
LANGLEY-10800 B74-10201 04
System for measuring transients in fluid flow
ARC-10852 B74-10217 03
Evaluation of test procedures for hydrogen environment embrittlement
ARC-10919 B74-10222 04
Horn antenna with v-shaped corrugated surface
LANGLEY-11112 B74-10260 01
Automated maintenance for complex hybrid systems
NPO-13143 B74-10279 09

EVAPORATORS

Heat pipe with hot gas reservoir
ARC-10847 B74-10216 03

EXERCISE (PHYSIOLOGY)

Therapeutic hand-exercising device with cycling pressure value
LANGLEY-11579 B74-10140 05

EXHAUST NOZZLES

Thrust vector control for V/STOL aircraft
ARC-10788 B74-10049 06

EXHAUST SYSTEMS

Control vane for engine exhaust flow
LANGLEY-11570 B74-10138 06

EXPLOSIVE DEVICES

Laser-actuated mechanical device
NPO-13105 B74-10166 03
Laser system to detonate explosive devices
NPO-11743 B74-10194 03

EXPLOSIVE WELDING

Explosive welding technique for joining aluminum and steel tubes
MSC-14721 B74-10272 08

EXPLOSIVES

Apparatus for monitoring linear explosive performance
LANGLEY-10800 B74-10201 04
Negative ion spectrometry for detecting nitrated explosives
NPO-13082 B74-10276 02

EXTRACTION

Liquid sample processor
NPO-13136 B74-10278 05
Straight-line IC removal tool
NPO-13157 B74-10281 01

F**FABRICATION**

Fabrication of complex structures or assemblies by hot isostatic pressure (HIP) welding
LEWIS-11490 B74-10124 04
Fabrication of thick structures by sputtering
LEWIS-12331 B74-10126 08
Laminating cored, stressed-face, sandwich structures
XLA-11028 B74-10233 06

Depositing spacing layers on magnetic film with liquid phase epitaxy
LANGLEY-11528 B74-10262 01
Controlled intermittent interfacial bond concept for composite materials
LANGLEY-11628 B74-10264 04
Improved fabrication of electrolytic capacitors
M-FS-23133 B74-10294 01

FAIL-SAFE SYSTEMS

Fail-safe fire detection system
LEWIS-12238 B74-10078 02

FAILURE

DC-to-AC inverter ratio failure detector
NPO-13160 B74-10282 01

FASTENERS

Modular support blocks for fluid lines
MSC-19335 B74-10023 07
New insulation attachment method eliminates compatibility bondline stresses
MSC-12615 B74-10269 07

FATIGUE (BIOLOGY)

Liquid-cooled liner for helmets
ARC-10534 B74-10249 05

FATIGUE (MATERIALS)

Holographic evaluation of fatigue cracks by a compressive stress (HYSTERESIS) technique
MSC-14555 B74-10156 06

FEEDBACK CONTROL

Antiskid braking system
M-FS-22807 B74-10146 06
Improved control for nuclear/thermionic power source: A concept
NPO-13114 B74-10167 03
Swashplate feedback control for tilt-rotor aircraft
ARC-10854 B74-10174 06
Implementation of a self-controlling heater: A concept
GSFC-11752 B74-10241 06
Lead-oxygen closed-loop battery system
M-FS-23059 B74-10267 06

FIBER OPTICS

Rotating turbine blade pyrometer
LEWIS-12218 B74-10068 01
Laser-actuated mechanical device
NPO-13105 B74-10166 03
Laser system to detonate explosive devices
NPO-11743 B74-10194 03
Inspection of transparent surfaces using photosensitive paper
MSC-19442 B74-10224 03

FIBERS

Polymer compositions suitable for use in enriched oxygen atmospheres
MSC-14618 B74-10154 04
Flame resistant elastic elastomeric fiber
MSC-14331 B74-10157 04
Process for fabrication of stabilized aluminum phosphate fibers
LANGLEY-11526 B74-10185 08
New insulation attachment method eliminates compatibility bondline stresses
MSC-12615 B74-10269 07

FIELD EMISSION

Self-protected electrodes limit field-emission current
ERC-10015 B74-10253 01

FILLERS

Binary alloys for refractory-metal brazing
LEWIS-12184 B74-10125 08

FILM THICKNESS

Method of measuring the thickness of radioactive thin films
LEWIS-11971 B74-10065 03
A high yield neutron target
LEWIS-12058 B74-10066 03

FILTRATION

Two-phase, passive separator-and-filter assembly
LANGLEY-10976 B74-10133 04
Domestic wash water reclamation
LANGLEY-11606 B74-10177 04
Metallized polymeric foam material
ARC-10860 B74-10218 04

FINGERS

Therapeutic hand-exercising device with cycling pressure value
LANGLEY-11579 B74-10140 05
Finger recording electrode system for electrical impedance plethysmograph
ARC-10816 B74-10172 05

FINITE DIFFERENCE THEORY

Computer program for calculating velocities and streamlines on mid-channel flow surface of axial or mixed-flow turbomachine
LEWIS-12129 B74-10130 09

FIRE CONTROL

Radio-controlled, sound-operated switch
LANGLEY-11641 B74-10143 03

FIRE CONTROL CIRCUITS

Fail-safe fire detection system
LEWIS-12238 B74-10078 02

FIRE FIGHTING

Emergency descent device
M-FS-23074 B74-10226 05
A band clamp with a spring toggle lever
MSC-14736 B74-10240 07
Liquid-cooled liner for helmets
ARC-10534 B74-10249 05

FIRE PREVENTION

Combustion products generating and metering device
GSFC-11095 B74-10036 04
Process for fabrication of stabilized aluminum phosphate fibers
LANGLEY-11526 B74-10185 08

FITTINGS

Artificial limb connection
KSC-10833 B74-10183 05

FLAME IONIZATION

Modulated hydrogen-ion flame detector: A concept
ARC-10322 B74-10071 03

FLAME TEMPERATURE

Measurement of temperature profiles in hot gases and flames
LEWIS-12055 B74-10060 03

FLANGES

Improved geneva mechanism
LANGLEY-11443 B74-10030 06
Design standards for low-profile flanges
M-FS-22708 B74-10033 09
Flange design for large-scale modular assembly jigs
MSC-19372 B74-10273 06

FLAPS (CONTROL SURFACES)

Reversed cowl-flap thrust augmentor
ARC-10754 B74-10046 06
Thrust vector control for V/STOL aircraft
ARC-10788 B74-10049 06

FLAT CONDUCTORS

Microelectronics packaging technique: A Concept
MSC-19399 B74-10192 01

FLAT PLATES

Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)

LANGLEY-11199 B74-10203 09

Computer program for stresses and buckling of heated composite-stiffened panels and other structures (BUCLASP 3)

LANGLEY-11533 B74-10204 09

FLAT SURFACES

Flat device for heat concentration or dispersion

LANGLEY-11699 B74-10291 03

FLEXING

Mechanical coupling for high cyclic loading

LEWIS-11690 B74-10001 06

FLIGHT CONTROL

Vented-vectoring-nozzle for STOL and V/STOL aircraft

ARC-10839 B74-10058 06

FLIGHT CREWS

Liquid-cooled liner for helmets

ARC-10534 B74-10249 05

FLIGHT TEST INSTRUMENTS

Optical discriminator system

LANGLEY-11580 B74-10139 03

FLIGHT TESTS

G-load indicator and warning device for aircraft

ARC-10806 B74-10171 02

Flight tests of vortex-attenuating splines

LANGLEY-11645 B74-10187 03

FLOATS

Wireless telemetry system for floating bodies

KSC-10855 B74-10028 06

FLOCCULATING

Polyelectrolytes with high charge density

NPO-11918 B74-10159 04

FLOTATION

Improved magnetic suspension technique

GSFC-11079 B74-10254 03

FLOW MEASUREMENT

System for measuring transients in fluid flow

ARC-10852 B74-10217 03

FLOW REGULATORS

Remotely operated gas-pressure regulator and shuttle valve

NPO-13201 B74-10298 07

FLOW RESISTANCE

Full-flow fluid filter

NPO-13118 B74-10277 02

FLOW VELOCITY

Computer program for calculating velocities and streamlines on mid-channel flow surface of axial or mixed-flow turbomachine

LEWIS-12129 B74-10130 09

FLUERICS

Ignition of sounding rocket motors with hand-pumped air

LANGLEY-11152 B74-10202 03

FLUID DYNAMICS

Fluid dynamics test method

NPO-11895 B74-10211 03

FLUID FILTERS

Full-flow fluid filter

NPO-13118 B74-10277 02

FLUID FLOW

Modular support blocks for fluid lines

MSC-19335 B74-10023 07

Computer program for predicting off-design performance of centrifugal compressors

LEWIS-12186 B74-10067 09

Thin-film temperature sensor

NPO-11775 B74-10100 01

System for measuring transients in fluid flow

ARC-10852 B74-10217 03

FLUID TRANSMISSION LINES

Modular support blocks for fluid lines

MSC-19335 B74-10023 07

FLUORIDES

Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)

LEWIS-11930 B74-10016 04

FLUX DENSITY

Calorimetric detection of neutral-atom content of ion beam

LANGLEY-11505 B74-10184 03

Improved magnetic suspension technique

GSFC-11079 B74-10254 03

FOAMS

Thermally-stable, syntactic pyrrone foams

LANGLEY-11325 B74-10135 06

FOLDING STRUCTURES

Horn antenna with v-shaped corrugated surface

LANGLEY-11112 B74-10260 01

FORCED CONVECTION

Computer program for calculating water and steam properties

LEWIS-12206 B74-10123 09

FORMING TECHNIQUES

Pressure application technique for high-temperature composite fabrication

LANGLEY-11601 B74-10141 08

FORTRAN

Design standards for low-profile flanges

M-FS-22708 B74-10033 09

Computer program for spacecraft-booster separation spring selection, set composition, and location determination

GSFC-11616 B74-10037 09

Graphics shadowing analysis

M-FS-21406 B74-10040 09

Marshall information retrieval and display system (MIRADS)

M-FS-22536 B74-10043 09

Generalized curve fit and plotting (GECAP) program

M-FS-22728 B74-10044 09

Computer program for predicting off-design performance of centrifugal compressors

LEWIS-12186 B74-10067 09

Dynamic transformation method

M-FS-22848 B74-10076 06

Computer program for flexible rotor dynamics analysis

LEWIS-12153 B74-10084 09

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow

LANGLEY-11175 B74-10091 06

Computation of aerodynamic interference between lifting surfaces and lift- and cruise-fans

ARC-10833 B74-10113 09

Computer program for calculating water and steam properties

LEWIS-12206 B74-10123 09

Data summary and computer program for axial-flow pump rotor performance

LEWIS-11920 B74-10127 09

Computer program for calculating critical speeds of rotating shafts

LEWIS-11910 B74-10128 09

Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow

LEWIS-12178 B74-10129 09

Computer program for calculating velocities and streamlines on mid-channel flow surface of axial or mixed-flow turbomachine

LEWIS-12129 B74-10130 09

Space ultrareliable modular computer (SUMC) instruction simulator

M-FS-22697 B74-10145 09

Separation dynamics of S-II derivative launch vehicle

M-FS-24325 B74-10151 06

Eigenfunction solution of damped structural systems: DAMP

NPO-13480 B74-10169 09

Computer program for structural analysis of layered orthotropic ring-stiffened shells of revolution (SALORS): Linear stress analysis option

LANGLEY-11569 B74-10186 09

Model optimization using statistical estimation

M-FS-22873 B74-10189 09

FORTTRAN automatic code evaluation system (FACES)

M-FS-22910 B74-10190 09

Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)

LANGLEY-11199 B74-10203 09

Computer program for stress, stability, and vibration of complex branched shells of revolution: BOSOR 4

LANGLEY-11209 B74-10205 09

Computer program for steamtube curvature analysis: Analytical method

LANGLEY-11535 B74-10206 09

Investigation of exit-velocity stratification effects on jets in a crossflow (STRJET)

LANGLEY-11581 B74-10207 09

Eigenvalue algorithm based on a combined sturm sequence and inverse iteration technique (EASI)

NPO-13368 B74-10215 09

Calculation of aerodynamic characteristics of STOL aircraft

ARC-10882 B74-10221 09

Computerized logic design of digital circuits

M-FS-22401 B74-10225 09

Numerical program for analysis of three-dimensional supersonic exhaust flow fields (CHAR 3D)

LANGLEY-11596 B74-10236 09

FOURIER TRANSFORMATION

Continuous Fourier transform system

ARC-10466 B74-10170 02

FRACTURE MECHANICS

Evaluation of test procedures for hydrogen environment embrittlement

ARC-10919 B74-10222 04

FRACTURE STRENGTH

Controlled intermittent interfacial bond concept for composite materials

LANGLEY-11628 B74-10264 04

FRAGMENTATION

Economical technique for fragmentation testing
ARC-10792 B74-10052 04

FRAMES

Expandable space frames
ERC-10365 B74-10252 06

FREQUENCIES

High-efficiency multifrequency feed
GSFC-11909 B74-10288 02

FREQUENCY CONVERTERS

Synchronized frequency transposer
GSFC-11763 B74-10256 01

FREQUENCY MEASUREMENT

Reduction of quantization error in measurement of frequency
MSC-14649 B74-10191 02

FREQUENCY MULTIPLIERS

Phased-array antenna phase control circuit using frequency multiplication
ERC-10285 B74-10251 01

FREQUENCY SYNTHESIZERS

Minicomputer-controlled frequency generator
NPO-11962 B74-10163 02

FRESNEL DIFFRACTION

A low cost "Air Mass 2" solar simulator
LEWIS-12266 B74-10086 02

FRICTION REDUCTION

Lightweight, high speed bearing balls: A concept
LEWIS-11087 B74-10013 06
Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)
LEWIS-11930 B74-10016 04

FUEL FLOW

Propellant acquisition device for use with a spinning toroidal tank
ARC-10840 B74-10059 06

FUEL VALVES

Design criteria monograph for pressure regulators, relief valves, check valves, burst disks, and explosive valves
LEWIS-12168 B74-10010 07
Design criteria monograph for valve components
LEWIS-12327 B74-10087 06

FUNCTION GENERATORS

Logarithmic-function generator
ERC-10267 B74-10285 02

FUNGICIDES

Polyelectrolytes with high charge density
NPO-11918 B74-10159 04

FURNACES

High strength nickel base alloy, WAZ-16, for applications up to 2200 F
LEWIS-12270 B74-10082 04

FUSES

Self-healing fuse
LEWIS-11964 B74-10004 02

G**GALVANOMETERS**

Low cost instrumentation amplifier
LEWIS-12222 B74-10015 01

GAS ANALYSIS

Rapid method for determining nitrogen in tantalum and niobium alloys
LEWIS-12237 B74-10085 04

GAS BEARINGS

Self-leveling load table
M-FS-22039 B74-10144 06

GAS DETECTORS

Extendible probe for atmosphere sampling
ARC-10829 B74-10054 03
Modulated hydrogen-ion flame detector: A concept
ARC-10322 B74-10071 03
Probe for measuring turbulent real-time shear-stress waves
ARC-10755 B74-10072 03

GAS DISCHARGE TUBES

Coaxial anode improves sensitivity of gas radiation counters
GSFC-11492 B74-10229 03

GAS FLOW

Probe for measuring turbulent real-time shear-stress waves
ARC-10755 B74-10072 03
Shutoff and throttling valve
NPO-11951 B74-10105 07
Control vane for engine exhaust flow
LANGLEY-11570 B74-10138 06

GAS GENERATORS

Design criteria monograph for liquid propellant gas generators
LEWIS-12139 B74-10008 07

GAS IONIZATION

Modulated hydrogen-ion flame detector: A concept
ARC-10322 B74-10071 03
Electrostatically controlled heat shutter
NPO-11942 B74-10161 03

GAS PRESSURE

Remotely operated gas-pressure regulator and shuttle valve
NPO-13201 B74-10298 07

GAS SPECTROSCOPY

Improved nondispersive infrared analyzer
ARC-10802 B74-10243 03

GAS TURBINE ENGINES

New nickel-base wrought superalloy with applications up to 1253 K (1800 F)
LEWIS-11828 B74-10003 04
High strength nickel base alloy, WAZ-16, for applications up to 2200 F
LEWIS-12270 B74-10082 04

GAS TURBINES

Design criteria monograph for liquid propellant gas generators
LEWIS-12139 B74-10008 07
Advanced tungsten fiber-reinforced nickel superalloy
LEWIS-12394 B74-10248 04

GASKETS

Soft, thermally conductive material
LANGLEY-10850 B74-10132 04

GATES (CIRCUITS)

High voltage solid-state relay
LEWIS-12096 B74-10006 01

GE COMPUTERS

Computer program for spacecraft-booster separation spring selection, set composition, and location determination
GSFC-11616 B74-10037 09

GEARS

Improved geneva mechanism
LANGLEY-11443 B74-10030 06

GEOMAGNETISM

Magnetometer with miniature transducer and automatic transducer scanning apparatus
LANGLEY-11617 B74-10142 02

GERMANIUM

Improved solid-state triode construction
NPO-13064 B74-10107 01

GLASS

Precision glasscutter
LANGLEY-11604 B74-10031 07

GLASS FIBERS

Glass fiber addition strengthens low-density ablative compositions
LANGLEY-11288 B74-10027 04

GRAPHIC ARTS

Viewgraph preparation made easier
LANGLEY-11612 B74-10094 03

GRAPHITE

Graphite ionization vacuum gauge
LANGLEY-11338 B74-10136 03

GROUND-AIR-GROUND COMMUNICATIONS

Traffic control system and method
GSFC-10087 B74-10024 02

GUNS

Economical technique for fragmentation testing
ARC-10792 B74-10052 04

GUNS (ORDNANCE)

Cobalt base superalloy has outstanding properties up to 1478 K (2200 F)
LEWIS-12089 B74-10081 03

GYROSCOPES

Temperature compensation of digital inertial sensors
NPO-13044 B74-10106 02

H**HANDBOOKS**

Design criteria monograph for valve components
LEWIS-12327 B74-10087 06
Guidebook of nondestructive evaluation techniques for materials and structures
LEWIS-12272 B74-10122 04
Telecommunications systems design techniques handbook
NPO-13245 B74-10284 02

HANDLES

A band clamp with a spring toggle lever
MSC-14736 B74-10240 07

HARDENING (MATERIALS)

Lightweight, high speed bearing balls: A concept
LEWIS-11087 B74-10013 06

HEART RATE

Heart-rate pulse-shift detector
ARC-10729 B74-10196 01

HEAT

Radioisotope thermal generator (RTG) power conditioner
LANGLEY-11313 B74-10022 03

HEAT MEASUREMENT

Calorimetric detection of neutral-atom content of ion beam
LANGLEY-11505 B74-10184 03

HEAT PIPES

Throttleable heat pipe
ARC-10848 B74-10173 03
Heat pipe with hot gas reservoir
ARC-10847 B74-10216 03
Flat device for heat concentration or dispersion
LANGLEY-11699 B74-10291 03

HEAT RESISTANT ALLOYS

A new nickel-base wrought superalloy for applications up to 1033 K (1400 F)
LEWIS-11827 B74-10002 04

New nickel-base wrought superalloy with applications up to 1253 K (1800 F)
LEWIS-11828 B74-10003 04

Addition of silicon improves oxidation resistance of nickel based superalloys
LEWIS-12138 B74-10007 04

Cobalt base superalloy has outstanding properties up to 1478 K (2200 F)
LEWIS-12089 B74-10081 03

High strength nickel base alloy, WAZ-16, for applications up to 2200 F
LEWIS-12270 B74-10082 04

Advanced tungsten fiber-reinforced nickel superalloy
LEWIS-12394 B74-10248 04

HEAT SHIELDING

Volume-reflecting dielectric heat shield
ARC-10803 B74-10074 04

HEAT TOLERANCE

Liquid-cooled liner for helmets
ARC-10534 B74-10249 05

HEAT TRANSFER

Heat-transfer thermal switch
LANGLEY-11232 B74-10092 06

Analysis of orbital heat transfer
ARC-10844 B74-10116 03

Electrostatically controlled heat shutter
NPO-11942 B74-10161 03

Flat device for heat concentration or dispersion
LANGLEY-11699 B74-10291 03

HEAT TREATMENT

Apparatus for heat treating plastic belts
NPO-13205 B74-10299 02

HEATING EQUIPMENT

Radioisotope heater
ARC-10791 B74-10051 03

Implementation of a self-controlling heater: A concept
GSFC-11752 B74-10241 06

HELICOPTER DESIGN

Control vane for engine exhaust flow
LANGLEY-11570 B74-10138 06

HELIUM-NEON LASERS

Laser-scanning techniques for rapid ballistics identification
NPO-11861 B74-10102 03

HELMETS

Liquid-cooled liner for helmets
ARC-10534 B74-10249 05

HIGH GAIN

Bidirectional zoom antenna
GSFC-11862 B74-10257 01

HIGH PASS FILTERS

Electronic high pass filter
LEWIS-11600 B74-10083 02

HIGH PRESSURE

Light-weight spherical submergence vessel
ARC-10838 B74-10114 08

Full-flow fluid filter
NPO-13118 B74-10277 02

HIGH STRENGTH ALLOYS

A new nickel-base wrought superalloy for applications up to 1033 K (1400 F)
LEWIS-11827 B74-10002 04

New nickel-base wrought superalloy with applications up to 1253 K (1800 F)
LEWIS-11828 B74-10003 04

Cobalt base superalloy has outstanding properties up to 1478 K (2200 F)
LEWIS-12089 B74-10081 03

High strength nickel base alloy, WAZ-16, for applications up to 2200 F
LEWIS-12270 B74-10082 04

High-strength alloy with resistance to hydrogen-environment embrittlement
M-FS-19234 B74-10265 04

HIGH TEMPERATURE

Shutoff and throttling valve
NPO-11951 B74-10105 07

Light-weight spherical submergence vessel
ARC-10838 B74-10114 08

Pressure application technique for high-temperature composite fabrication
LANGLEY-11601 B74-10141 08

HIGH TEMPERATURE ENVIRONMENTS

Integrated structure vacuum tube: A Concept
ARC-10445 B74-10110 01

Laser-actuated mechanical device
NPO-13105 B74-10166 03

HIGH TEMPERATURE GASES

Measurement of temperature profiles in hot gases and flames
LEWIS-12055 B74-10060 03

HIGH TEMPERATURE LUBRICANTS

Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)
LEWIS-11930 B74-10016 04

HIGH TEMPERATURE TESTS

High-temperature tensile tester for ceramics
ARC-10822 B74-10244 04

HIGH VACUUM

Semipermanent sealing of leaks in high vacuum systems
ARC-10881 B74-10175 04

HIGH VOLTAGES

Electrometer system measures nanoamps at high voltage
LEWIS-12267 B74-10064 01

Very high voltage latching relay
LEWIS-12265 B74-10079 01

High-voltage distributors
GSFC-11849 B74-10242 01

HOLDERS

Thermistor holder for skin-temperature measurements
ARC-10855 B74-10119 05

Finger recording electrode system for electrical impedance plethysmograph
ARC-10816 B74-10172 05

Reference apparatus for medical ultrasonic transducer
ARC-10753 B74-10197 01

HOLOGRAPHY

Holographic evaluation of fatigue cracks by a compressive stress (HYSTERESIS) technique
MSC-14555 B74-10156 06

Acoustic-optic deflector telescope
M-FS-23107 B74-10293 03

HONEYCOMB CORES

Laminating cored, stressed-face, sandwich structures
XLA-11028 B74-10233 06

HONEYCOMB STRUCTURES

Thermally-stable, syntactic pyrrone foams
LANGLEY-11325 B74-10135 06

Noise suppressor
LANGLEY-11141 B74-10261 03

HORN ANTENNAS

Horn antenna with v-shaped corrugated surface
LANGLEY-11112 B74-10260 01

HOUSINGS

Design criteria monograph for valve components
LEWIS-12327 B74-10087 06

HYBRID CIRCUITS

High voltage solid-state relay
LEWIS-12096 B74-10006 01

HYDRAULIC CONTROL

Mechanical coupling for high cyclic loading
LEWIS-11690 B74-10001 06

HYDROGEN

Evaluation of test procedures for hydrogen environment embrittlement
ARC-10919 B74-10222 04

High-strength alloy with resistance to hydrogen-environment embrittlement
M-FS-19234 B74-10265 04

HYDROGEN IONS

Modulated hydrogen-ion flame detector: A concept
ARC-10322 B74-10071 03

HYSTERESIS

Holographic evaluation of fatigue cracks by a compressive stress (HYSTERESIS) technique
MSC-14555 B74-10156 06

I

IBM 360 COMPUTER

Graphics shadowing analysis
M-FS-21406 B74-10040 09

Computer program for flexible rotor dynamics analysis
LEWIS-12153 B74-10084 09

Computer program for calculating water and steam properties
LEWIS-12206 B74-10123 09

Data summary and computer program for axial-flow pump rotor performance
LEWIS-11920 B74-10127 09

Computer program for calculating velocities and streamlines on mid-channel flow surface of axial or mixed-flow turbomachine
LEWIS-12129 B74-10130 09

Separation dynamics of S-II derivative launch vehicle
M-FS-24325 B74-10151 06

Calculation of aerodynamic characteristics of STOL aircraft
ARC-10882 B74-10221 09

IBM 1130 COMPUTER

Generalized curve fit and plotting (GECAP) program
M-FS-22728 B74-10044 09

IBM 2250 COMPUTER

Graphics shadowing analysis
M-FS-21406 B74-10040 09

IBM 7044 COMPUTER

Computer program for predicting off-design performance of centrifugal compressors
LEWIS-12186 B74-10067 09

Computer program for calculating water and steam properties
LEWIS-12206 B74-10123 09

Computer program for calculating critical speeds of rotating shafts
LEWIS-11910 B74-10128 09

- Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow
LEWIS-12178 874-10129 09
- IBM 7094 COMPUTER**
Computer program for spacecraft-booster separation spring selection, set composition, and location determination
GSFC-11616 874-10037 09
- Computer program for predicting off-design performance of centrifugal compressors
LEWIS-12186 874-10067 09
- Computation of aerodynamic interference between lifting surfaces and lift- and cruise-fans
ARC-10833 874-10113 09
- Computer program for calculating water and steam properties
LEWIS-12206 874-10123 09
- Computer program for calculating critical speeds of rotating shafts
LEWIS-11910 874-10128 09
- Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow
LEWIS-12178 874-10129 09
- IDENTIFYING**
Ultrasonic scanner for footprint identification
NPO-13055 874-10212 03
- Automated drug identification system
NPO-13063 874-10213 05
- IGNITION SYSTEMS**
Ignition of sounding rocket motors with hand-pumped air
LANGLEY-11152 874-10202 03
- IMAGE ENHANCEMENT**
Vertical copy camera system provides photographs from erts-1 imagery
LEWIS-12140 874-10009 07
- IMAGERY**
Vertical copy camera system provides photographs from erts-1 imagery
LEWIS-12140 874-10009 07
- IMAGES**
Recorder/processor apparatus
GSFC-11553 874-10042 03
- IMAGING TECHNIQUES**
Graphics shadowing analysis
M-FS-21406 874-10040 09
- IMPEDANCE MATCHING**
High q band-pass resonators utilizing composite band-stop resonator pairs
GSFC-10990 874-10035 02
- IMPEDANCE PROBES**
In vivo measurement of mechanical impedance of bone
ARC-10857 874-10245 05
- IMPLANTATION**
Artificial limb connection
KSC-10833 874-10183 05
- Heart-rate pulse-shift detector
ARC-10729 874-10196 01
- IMPROVEMENT**
Improved capacitance multiplier circuit
NPO-11948 874-10162 02
- INDUSTRIAL SAFETY**
Directory of aerospace safety specialized information sources
LEWIS-12223 874-10019 03
- INERTIAL REFERENCE SYSTEMS**
Temperature compensation of digital inertial sensors
NPO-13044 874-10106 02
- INFORMATION RETRIEVAL**
Marshall information retrieval and display system (MIRADS)
M-FS-22536 874-10043 09
- INFORMATION THEORY**
Anti-multipath digital signal detector
LANGLEY-11379 874-10137 02
- INFRARED SPECTRA**
Spectrometer
GSFC-11694 874-10181 03
- INFRARED SPECTROMETERS**
Improved nondispersive infrared analyzer
ARC-10802 874-10243 03
- INFRARED SPECTROSCOPY**
Measurement of temperature profiles in hot gases and flames
LEWIS-12055 874-10060 03
- INFRASONIC FREQUENCIES**
Volume measuring system
MSC-13972 874-10271 03
- INJECTION LASERS**
Short-range laser obstacle detector
NPO-11856 874-10101 03
- INLET PRESSURE**
Reversed cowl-flap thrust augmentor
ARC-10754 874-10046 06
- INSPECTION**
Detection of cracks in surface insulation
MSC-14187 874-10095 04
- Pocket gauge for checking insert clocking of multipin circular connectors
NPO-11924 874-10160 01
- Inspection of transparent surfaces using photosensitive paper
MSC-19442 874-10224 03
- INSTRUMENT ORIENTATION**
Reference apparatus for medical ultrasonic transducer
ARC-10753 874-10197 01
- INSULATION**
Glass fiber addition strengthens low-density ablative compositions
LANGLEY-11288 874-10027 04
- Process for fabrication of stabilized aluminum phosphate fibers
LANGLEY-11526 874-10185 08
- INSULATORS**
Volume-reflecting dielectric heat shield
ARC-10803 874-10074 04
- INTAKE SYSTEMS**
Reversed cowl-flap thrust augmentor
ARC-10754 874-10046 06
- INTEGRAL EQUATIONS**
Analysis of orbital heat transfer
ARC-10844 874-10116 03
- INTEGRATED CIRCUITS**
Compact telemetry package for remote monitoring of neutron responses in animals
NPO-11887 874-10103 05
- Integrated structure vacuum tube: A Concept
ARC-10445 874-10110 01
- Error-correcting codes for high-speed digital computers
M-FS-22887 874-10147 02
- Side wire feed for welding apparatus
NPO-13148 874-10214 08
- A method for polycrystalline silicon delineation applicable to a double-diffused MOS transistor
LANGLEY-11536 874-10234 01
- Straight-line IC removal tool
NPO-13157 874-10281 01
- INTERFACES**
High-speed fault-tolerant telemetry/computer interface
NPO-13139 874-10296 02
- INTERFERENCE LIFT**
Computation of aerodynamic interference between lifting surfaces and lift- and cruise-fans
ARC-10833 874-10113 09
- INTERFEROMETRY**
Holographic evaluation of fatigue cracks by a compressive stress (HYSTERESIS) technique
MSC-14555 874-10156 06
- INVERTERS**
DC-to-AC inverter ratio failure detector
NPO-13160 874-10282 01
- INVISCID FLOW**
Computer program for steamtube curvature analysis: Analytical method
LANGLEY-11535 874-10206 09
- IODINE**
Iodine generator for disinfecting reclaimed water
MSC-14632 874-10153 05
- ION BEAMS**
Improved dispensing targets for ion beam particle generators
NPO-13112 874-10108 03
- Calorimetric detection of neutral-atom content of ion beam
LANGLEY-11505 874-10184 03
- ION CURRENTS**
Modulated hydrogen-ion flame detector: A concept
ARC-10322 874-10071 03
- ION SOURCES**
Graphite ionization vacuum gauge
LANGLEY-11338 874-10136 03
- IONIZATION CHAMBERS**
Negative ion spectrometry for detecting nitrated explosives
NPO-13082 874-10276 02
- Micrometeoroid velocity-and-trajectory analyzer
GSFC-11889 874-10286 01
- IONIZATION GAGES**
Graphite ionization vacuum gauge
LANGLEY-11338 874-10136 03
- IONIZED GASES**
Modulated hydrogen-ion flame detector: A concept
ARC-10322 874-10071 03
- IONIZING RADIATION**
Radiation hardening of metal-oxide semiconductor (MOS) devices by boron
GSFC-11425 874-10026 01
- IRRADIATION**
Improved dispensing targets for ion beam particle generators
NPO-13112 874-10108 03
- ISOLATORS**
Control of elasticity in cast elastomeric shock/vibration isolators
KSC-10850 874-10039 07
- Self-protecting solid state isolated switch
LEWIS-12268 874-10069 01
- J**
- JET ENGINES**
Mechanical coupling for high cyclic loading
LEWIS-11690 874-10001 06

A new nickel-base wrought superalloy for applications up to 1033 K (1400 F)
LEWIS-11827 B74-10002 04
Reversed cowl-flap thrust augmentor
ARC-10754 B74-10046 06
Rotating turbine blade pyrometer
LEWIS-12218 B74-10068 01
Cobalt base superalloy has outstanding properties up to 1478 K (2200 F)
LEWIS-12089 B74-10081 03
High strength nickel base alloy, WAZ-16, for applications up to 2200 F
LEWIS-12270 B74-10082 04

JET EXHAUST

Investigation of exit-velocity stratification effects on jets in a crossflow (STRJET)
LANGLEY-11581 B74-10207 09

JET FLOW

Reversed cowl-flap thrust augmentor
ARC-10754 B74-10046 06
Thrust vector control for V/STOL aircraft
ARC-10788 B74-10049 06

JET VANES

Vented vectoring-nozzle for STOL and V/STOL aircraft
ARC-10839 B74-10058 06

JIGS

Flange design for large-scale modular assembly jigs
MSC-19372 B74-10273 06

JOINTS (JUNCTIONS)

Automatic soldering machine
MSC-19401 B74-10193 06
Explosive welding technique for joining aluminum and steel tubes
MSC-14721 B74-10272 08

K**KJELDAHL METHOD**

Rapid method for determining nitrogen in tantalum and niobium alloys
LEWIS-12237 B74-10085 04

L**LABORATORY EQUIPMENT**

Automated single-slide staining system
LANGLEY-11649 B74-10188 05
Liquid sample processor
NPO-13136 B74-10278 05

LAMINAR BOUNDARY LAYER

Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow
LEWIS-12178 B74-10129 09

LAMINATES

Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)
LANGLEY-11199 B74-10203 09
Laminating cored, stressed-face, sandwich structures
XLA-11028 B74-10233 06
Advanced fiber-composite hybrids--A new structural material
LEWIS-12118 B74-10247 04

LANDING AIDS

Traffic control system and method
GSFC-10087 B74-10024 02

Reversed cowl-flap thrust augmentor
ARC-10754 B74-10046 06

LANDSAT SATELLITES

Computer program for spacecraft-booster separation spring selection, set composition, and location determination
GSFC-11616 B74-10037 09

LANDSAT 1

Vertical copy camera system provides photographs from erts-1 imagery
LEWIS-12140 B74-10009 07

LARGE SCALE INTEGRATION

Data processor with conditionally supplied clock signals
GSFC-10975 B74-10021 02

LASER MODES

Dually-mode-locked ND: YAG laser
GSFC-11746 B74-10038 03

LASER OUTPUTS

Recorder/processor apparatus
GSFC-11553 B74-10042 03
Wavelength-selective, sequential Q-switching laser cavity
LANGLEY-11045 B74-10134 03

LASERS

Surface roughness measured by optical signatures
ARC-10853 B74-10118 03

LATERAL STABILITY

In vivo measurement of mechanical impedance of bone
ARC-10857 B74-10245 05

LAUNCH VEHICLES

Separation dynamics of S-II derivative launch vehicle
M-FS-24325 B74-10151 06

LEAD (METAL)

Lead-oxygen closed-loop battery system
M-FS-23059 B74-10267 06

LEAKAGE

Improved circumferential shaft seal
LEWIS-11873 B74-10062 07
Electrometer system measures nanoamps at high voltage
LEWIS-12267 B74-10064 01

LENSES

Acoustic-optic deflector telescope
M-FS-23107 B74-10293 03

LEVEL (HORIZONTAL)

Self-leveling load table
M-FS-22039 B74-10144 06

LIFE SUPPORT SYSTEMS

Programmed-pressure air supply for positive-pressure breathing system
ARC-10845 B74-10075 05
Spacecraft oxygen recovery system
ARC-10868 B74-10220 05

LIFT FANS

Computation of aerodynamic interference between lifting surfaces and lift- and cruise-fans
ARC-10833 B74-10113 09

LIFTING BODIES

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06

LIFTING ROTORS

Swashplate feedback control for tilt-rotor aircraft
ARC-10854 B74-10174 06

LIGHT (VISIBLE RADIATION)

Spectrometer
GSFC-11694 B74-10181 03

LIGHT ADAPTATION

Color-coded area sensitivity maps of photomultipliers
LANGLEY-10320 B74-10259 01

LIGHT AIRCRAFT

Pulse-width-modulated servo valve for autopilot system
LANGLEY-11643 B74-10179 06

LIGHT MODULATION

Improved nondispersive infrared analyzer
ARC-10802 B74-10243 03
Optical communication channel simulator system
GSFC-11877 B74-10258 01

LIGHTING EQUIPMENT

Casting copper to tungsten for high-power arc lamp cathodes
LEWIS-12169 B74-10011 04

LIMITER CIRCUITS

Self-healing fuse
LEWIS-11964 B74-10004 02

LINEARITY

Wide deviation phase modulator
LANGLEY-11607 B74-10178 02

LININGS

Liquid-cooled liner for helmets
ARC-10534 B74-10249 05

LIQUID COOLING

Liquid-cooled liner for helmets
ARC-10534 B74-10249 05

LIQUID FLOW

Shutoff and throttling valve
NPO-11951 B74-10105 07

LIQUID PHASES

Depositing spacing layers on magnetic film with liquid phase epitaxy
LANGLEY-11528 B74-10262 01

LIQUID PROPELLANT ROCKET ENGINES

Design criteria monograph on turbopump shafts and couplings
LEWIS-12204 B74-10014 07
Propellant acquisition device for use with a spinning toroidal tank
ARC-10840 B74-10059 06
Design criteria monograph for valve components
LEWIS-12327 B74-10087 06
Design criteria monograph for valve assemblies
LEWIS-12332 B74-10227 06
Design criteria monograph on centrifugal flow turbopumps
LEWIS-12346 B74-10228 06

LIQUID ROCKET PROPELLANTS

Design criteria monograph for liquid propellant gas generators
LEWIS-12139 B74-10008 07
Fluid dynamics test method
NPO-11895 B74-10211 03

LIQUID-GAS MIXTURES

Two-phase, passive separator-and-filter assembly
LANGLEY-10976 B74-10133 04

LOADS (FORCES)

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06

LOGARITHMS

Logarithmic-function generator
ERC-10267 B74-10285 02

LOGIC CIRCUITS

High voltage solid-state relay
LEWIS-12096 B74-10006 01

Data processor with conditionally supplied clock signals
 GSFC-10975 B74-10021 02
 Temperature compensation of digital inertial sensors
 NPO-13044 B74-10106 02
 Error-correcting codes for high-speed digital computers
 M-FS-22887 B74-10147 02

LOGIC DESIGN
 Modular digital computer system design
 M-FS-22935 B74-10034 09
 Computerized logic design of digital circuits
 M-FS-22401 B74-10225 09

LOW DENSITY MATERIALS
 Thermally-stable, syntactic pyrrone foams
 LANGLEY-11325 B74-10135 06

LOW FREQUENCIES
 Electronic high pass filter
 LEWIS-11600 B74-10083 02

LOW PASS FILTERS
 Low-distortion receiver for bilevel, baseband PCM waveforms
 MSC-14557 B74-10025 02

LOW TEMPERATURE
 Shutoff and throttling valve
 NPO-11951 B74-10105 07
 Low-temperature electrostatic silicon-to-silicon seals using sputtered borosilicate glass
 LANGLEY-11589 B74-10263 08

LOW WEIGHT
 Light-weight spherical submergence vessel
 ARC-10838 B74-10114 08
 Lead-oxygen closed-loop battery system
 M-FS-23059 B74-10267 06

LUBRICATION
 Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)
 LEWIS-11930 B74-10016 04
 Magnetic bearings with combined radial and axial control
 GSFC-11551 B74-10131 06

LUBRICATION SYSTEMS
 Improved circumferential shaft seal
 LEWIS-11873 B74-10062 07

LUMINAIRES
 A low cost "Air Mass 2" solar simulator
 LEWIS-12266 B74-10086 02

M

MACHINE TOOLS
 Dynamometer for measuring machining forces in two perpendicular directions
 M-FS-22899 B74-10148 07
 Flange design for large-scale modular assembly jigs
 MSC-19372 B74-10273 06

MAGNETIC ANOMALIES
 Magnetometer with miniature transducer and automatic transducer scanning apparatus
 LANGLEY-11617 B74-10142 02

MAGNETIC COILS
 Improved magnetic suspension technique
 GSFC-11079 B74-10254 03

MAGNETIC COMPASSES
 Magnetic-heading reference device
 LANGLEY-11387 B74-10176 02

MAGNETIC FIELDS
 Magnetic bearings with combined radial and axial control
 GSFC-11551 B74-10131 06

MAGNETIC FILMS
 Depositing spacing layers on magnetic film with liquid phase epitaxy
 LANGLEY-11528 B74-10262 01

MAGNETOMETERS
 Magnetometer with miniature transducer and automatic transducer scanning apparatus
 LANGLEY-11617 B74-10142 02
 Magnetic-heading reference device
 LANGLEY-11387 B74-10176 02

MAINTENANCE
 Automated maintenance for complex hybrid systems
 NPO-13143 B74-10279 09

MALFUNCTIONS
 Error-correcting codes for high-speed digital computers
 M-FS-22887 B74-10147 02

MANNED SPACECRAFT
 Graphics shadowing analysis
 M-FS-21406 B74-10040 09

MAPPING
 Analysis of orbital heat transfer
 ARC-10842 B74-10115 02

MAPS
 Color-coded area sensitivity maps of photomultipliers
 LANGLEY-10320 B74-10259 01

MARKING
 Process to restore obliterated serial numbers on metal surfaces
 LEWIS-12085 B74-10020 07
 Automatic marker for photographic film
 MSC-14705 B74-10152 03

MASERS
 Improved thermal isolation for superconducting magnet systems
 NPO-11875 B74-10158 02

MASS SPECTROMETERS
 Graphite ionization vacuum gauge
 LANGLEY-11338 B74-10136 03
 Negative ion spectrometry for detecting nitrated explosives
 NPO-13082 B74-10276 02

MASS SPECTROSCOPY
 Micrometeoroid velocity-and-trajectory analyzer
 GSFC-11889 B74-10286 01

MATERIALS HANDLING
 Guidebook of nondestructive evaluation techniques for materials and structures
 LEWIS-12272 B74-10122 04

MATHEMATICAL MODELS
 Model optimization using statistical estimation
 M-FS-22873 B74-10189 09
 Computer program for stress, stability, and vibration of complex branched shells of revolution: BOSOR 4
 LANGLEY-11209 B74-10205 09
 Investigation of exit-velocity stratification effects on jets in a crossflow (STRJET)
 LANGLEY-11581 B74-10207 09
 Calculation of aerodynamic characteristics of STOL aircraft
 ARC-10882 B74-10221 09

MATHEMATICAL TABLES
 Zeros of certain cross products of Bessel functions of fractional order
 LEWIS-12221 B74-10012 03

MEASURING INSTRUMENTS
 Low cost instrumentation amplifier
 LEWIS-12222 B74-10015 01
 Combustion products generating and metering device
 GSFC-11095 B74-10036 04
 Magnetometer with miniature transducer and automatic transducer scanning apparatus
 LANGLEY-11617 B74-10142 02
 Pocket gauge for checking insert clocking of multipin circular connectors
 NPO-11924 B74-10160 01

MECHANICAL DEVICES
 Improved geneva mechanism
 LANGLEY-11443 B74-10030 06
 Precision glasscutter
 LANGLEY-11604 B74-10031 07
 Computer program for spacecraft-booster separation spring selection, set composition, and location determination
 GSFC-11616 B74-10037 09
 Heat-transfer thermal switch
 LANGLEY-11232 B74-10092 06
 Apparatus for heat treating plastic belts
 NPO-13205 B74-10299 02

MECHANICAL DRIVES
 Solar array deployment from a spinning spacecraft
 ARC-10787 B74-10048 06

MECHANICAL IMPEDANCE
 In vivo measurement of mechanical impedance of bone
 ARC-10857 B74-10245 05

MECHANICAL MEASUREMENT
 Computer program for spacecraft-booster separation spring selection, set composition, and location determination
 GSFC-11616 B74-10037 09

MECHANICAL PROPERTIES
 Miniature biaxial strain transducer
 LANGLEY-11648 B74-10180 01
 Thermoelastic analysis of solar cell arrays and their material properties
 NPO-13458 B74-10301 03

MECHANIZATION
 Automatic marker for photographic film
 MSC-14705 B74-10152 03

MEDICAL EQUIPMENT
 Very high voltage latching relay
 LEWIS-12265 B74-10079 01
 Therapeutic hand-exercising device with cycling pressure valve
 LANGLEY-11579 B74-10140 05

MEDICAL PERSONNEL
 Liquid-cooled liner for helmets
 ARC-10534 B74-10249 05

MELTING POINTS
 Binary alloys for refractory-metal brazing
 LEWIS-12184 B74-10125 08

METAL AIR BATTERIES
 Lead-oxygen closed-loop battery system
 M-FS-23059 B74-10267 06

METAL COATINGS
 Lightweight, high speed bearing balls: A concept
 LEWIS-11087 B74-10013 06

METAL CUTTING
 Dynamometer for measuring machining forces in two perpendicular directions
 M-FS-22899 B74-10148 07

METAL FATIGUE

Lightweight, high speed bearing balls:
A concept
LEWIS-11087 874-10013 06

METAL FOILS

Advanced fiber-composite hybrids--A
new structural material
LEWIS-12118 874-10247 04

METAL MATRIX COMPOSITES

Plasma-sprayed metal-glass fluoride
coatings for lubrication to 1170 K (1650
F)
LEWIS-11930 874-10016 04
High strength, wire-reinforced
electroformed structures
LEWIS-12087 874-10018 08

METAL OXIDE SEMICONDUCTORS

Radiation hardening of metal-oxide
semiconductor (MOS) devices by boron
GSFC-11425 874-10026 01

METAL SURFACES

Surface roughness measured by optical
signatures
ARC-10853 874-10118 03

METAL WORKING

Mechanical rod peening
M-FS-23047 874-10237 07

METAL-METAL BONDING

Casting copper to tungsten for
high-power arc lamp cathodes
LEWIS-12169 874-10011 04

METALLIZING

Metallized polymeric foam material
ARC-10860 874-10218 04

METEOROLOGY

Method for remotely sensing turbulence
of planetary atmospheres
NPO-13154 874-10168 03

MICHELSON INTERFEROMETERS

Combined effects of a converging beam
of light and mirror misalignment in
michelson interferometry
ARC-10889 874-10246 03

MICROELECTRONICS

High voltage solid-state relay
LEWIS-12096 874-10006 01
Microelectronics packaging technique: A
Concept
MSC-19399 874-10192 01

MICROMETEORIODS

Micrometeoroid velocity-and-trajectory
analyzer
GSFC-11889 874-10286 01
Micrometeoroid composition analyzer
GSFC-11892 874-10287 01

MICROMINIATURIZATION

Reduction of quantization error in
measurement of frequency
MSC-14649 874-10191 02

MICROORGANISMS

Micro-organism distribution sampling for
bioassays
LANGLEY-10789 874-10289 05

MICROWAVE CIRCUITS

High q band-pass resonators utilizing
composite band-stop resonator pairs
GSFC-10990 874-10035 02

MICROWAVE SENSORS

Pocket-size microwave radiation hazard
detector
NPO-11461 874-10097 02

MINIATURE ELECTRONIC EQUIPMENT

Integrated structure vacuum tube: A
Concept
ARC-10445 874-10110 01

MINICOMPUTERS

Minicomputer-controlled frequency
generator
NPO-11962 874-10163 02
Advanced-priority interrupt module
NPO-13067 874-10165 02

MINING

Liquid-cooled liner for helmets
ARC-10534 874-10249 05

MIRRORS

Inexpensive lightweight mirror
MSC-14615 874-10155 05
Combined effects of a converging beam
of light and mirror misalignment in
michelson interferometry
ARC-10889 874-10246 03

MISALIGNMENT

Combined effects of a converging beam
of light and mirror misalignment in
michelson interferometry
ARC-10889 874-10246 03

MISSILE COMPONENTS

Cobalt base superalloy has outstanding
properties up to 1478 K (2200 F)
LEWIS-12089 874-10081 03

MODULATION

Interplex modulation and a
suppressed-carrier tracking loop for
coherent communications systems
NPO-11572 874-10209 01

MODULATORS

Dually-mode-locked ND: YAG laser
GSFC-11746 874-10038 03

MODULES

Modular support blocks for fluid lines
MSC-19335 874-10023 07

MODULUS OF ELASTICITY

Miniature biaxial strain transducer
LANGLEY-11648 874-10180 01

MOLDING MATERIALS

Cushion module for stowing electronic
equipment
ARC-10779 874-10073 04

MOLDS

Inexpensive lightweight mirror
MSC-14615 874-10155 05

MONITORS

Microelectronics packaging technique: A
Concept
MSC-19399 874-10192 01
Carbon monoxide detector
M-FS-23090 874-10268 04
Location of vehicles using AM station
broadcasting signals
NPO-13217 874-10300 02

MONOCHROMATIC RADIATION

Spectrometer
GSFC-11694 874-10181 03

MOTION PICTURES

Optical discriminator system
LANGLEY-11580 874-10139 03

MOTION STABILITY

Suppression of bending motion in elastic
bodies
XAC-05632 874-10070 06

MOTORS

Mechanical solar motor: A concept
M-FS-23062 874-10292 07

MUFFLERS

Noise suppressor
LANGLEY-11141 874-10261 03

MULTIPATH TRANSMISSION

Anti-multipath digital signal detector
LANGLEY-11379 874-10137 02

MULTIPLEXING

Wireless telemetry system for floating
bodies
KSC-10855 874-10028 06
Interplex modulation and a
suppressed-carrier tracking loop for
coherent communications systems
NPO-11572 874-10209 01
High-efficiency multifrequency feed
GSFC-11909 874-10288 02

MULTIPLIERS

Improved channel multiplier for
radiation-and-particle detectors
NPO-12128 874-10275 03

MULTIPROGRAMMING

Modular digital computer system
design
M-FS-22935 874-10034 09

MUSCULAR FUNCTION

Compact telemetry package for remote
monitoring of neutron responses in
animals
NPO-11887 874-10103 05

N**N-TYPE SEMICONDUCTORS**

Efficiency increased in new solar cell:
A Concept
LANGLEY-11174 874-10090 01

NETWORK ANALYSIS

Generalized current distribution rule
LANGLEY-11565 874-10093 02

NEUROLOGY

Compact telemetry package for remote
monitoring of neutron responses in
animals
NPO-11887 874-10103 05

NEUTRONS

Long life neutron generator target using
deuterium pass-through structure
LEWIS-11866 874-10063 03
Method of measuring the thickness of
radioactive thin films
LEWIS-11971 874-10065 03
A high yield neutron target
LEWIS-12058 874-10066 03

NICHROME (TRADEMARK)

Plasma-sprayed metal-glass fluoride
coatings for lubrication to 1170 K (1650
F)
LEWIS-11930 874-10016 04

NICKEL

High strength, wire-reinforced
electroformed structures
LEWIS-12087 874-10018 08

NICKEL ALLOYS

A new nickel-base wrought superalloy
for applications up to 1033 K (1400 F)
LEWIS-11827 874-10002 04
New nickel-base wrought superalloy with
applications up to 1253 K (1800 F)
LEWIS-11828 874-10003 04
Addition of silicon improves oxidation
resistance of nickel based superalloys
LEWIS-12138 874-10007 04
High strength nickel base alloy, WAZ-16,
for applications up to 2200 F
LEWIS-12270 874-10082 04
Advanced tungsten fiber-reinforced nickel
superalloy
LEWIS-12394 874-10248 04

O

NICKEL STEELS

High-strength alloy with resistance to hydrogen-environment embrittlement
M-FS-19234 B74-10265 04

NIMBUS SATELLITES

Computer program for spacecraft-booster separation spring selection, set composition, and location determination
GSFC-11616 B74-10037 09

NIOBIUM ALLOYS

Rapid method for determining nitrogen in tantalum and niobium alloys
LEWIS-12237 B74-10085 04

NITROGEN

Rapid method for determining nitrogen in tantalum and niobium alloys
LEWIS-12237 B74-10085 04

NOISE REDUCTION

Minicomputer-controlled frequency generator
NPO-11962 B74-10163 02
Noise suppressor
LANGLEY-11141 B74-10261 03

NONDESTRUCTIVE TESTS

Detection of cracks in surface insulation
MSC-14187 B74-10095 04
Valve degradation detector
ARC-10850 B74-10117 03
Surface roughness measured by optical signatures
ARC-10853 B74-10118 03
Guidebook of nondestructive evaluation techniques for materials and structures
LEWIS-12272 B74-10122 04
Holographic evaluation of fatigue cracks by a compressive stress (HYSTERESIS) technique
MSC-14555 B74-10156 06
System for measuring transients in fluid flow
ARC-10852 B74-10217 03
Compact source of soft X-rays
HQ-10732 B74-10232 03
Nondestructive testing of railroad wheels and rails by ultrasonics
M-FS-23086 B74-10238 06
Strain gauge sensitivity improved by using a composite beam
NPO-13170 B74-10297 07

NOZZLE FLOW

Numerical program for analysis of three-dimensional supersonic exhaust flow fields (CHAR 3D)
LANGLEY-11596 B74-10236 09

NOZZLE GEOMETRY

Vented vectoring-nozzle for STOL and V/STOL aircraft
ARC-10839 B74-10058 06

NOZZLE THRUST COEFFICIENTS

Vented vectoring-nozzle for STOL and V/STOL aircraft
ARC-10839 B74-10058 06

NUCLEAR AUXILIARY POWER UNITS

Radioisotope heater
ARC-10791 B74-10051 03
Economical technique for fragmentation testing
ARC-10792 B74-10052 04

NUCLEAR ELECTRIC POWER GENERATION

Improved control for nuclear/thermionic power source: A concept
NPO-13114 B74-10167 03

O RING SEALS

Improved circumferential shaft seal
LEWIS-11873 B74-10062 07

OIL EXPLORATION

Improved dispensing targets for ion beam particle generators
NPO-13112 B74-10108 03

OPTICAL COMMUNICATION

Dually-mode-locked ND: YAG laser
GSFC-11746 B74-10038 03
Dynamic polarization compensating system for optical communications receiver
GSFC-11782 B74-10182 03
Optical communication channel simulator system
GSFC-11877 B74-10258 01

OPTICAL DATA PROCESSING

Recorder/processor apparatus
GSFC-11553 B74-10042 03

OPTICAL EQUIPMENT

Inexpensive lightweight mirror
MSC-14615 B74-10155 05

OPTICAL MEASUREMENT

Wavelength-selective, sequential Q-switching laser cavity
LANGLEY-11045 B74-10134 03

OPTICAL REFLECTION

Surface roughness measured by optical signatures
ARC-10853 B74-10118 03

OPTICAL SCANNERS

Laser-scanning techniques for rapid ballistics identification
NPO-11861 B74-10102 03
Fast signal averager
ARC-10090 B74-10109 02

OPTICAL TRACKING

Remote sunfall monitor: A concept
M-FS-22943 B74-10149 03

ORGANIC COMPOUNDS

Detection of cracks in surface insulation
MSC-14187 B74-10095 04

ORGANIC MATERIALS

Polymer compositions suitable for use in enriched oxygen atmospheres
MSC-14618 B74-10154 04
New tooth enamel from brushite crystals
ERC-10338 B74-10199 05

ORGANIC NITRATES

Negative ion spectrometry for detecting nitrated explosives
NPO-13082 B74-10276 02

ORIENTATION

Spacecraft attitude determination by fanscan technique
ARC-10827 B74-10198 02

ORTHOPEDICS

Therapeutic hand-exercising device with cycling pressure value
LANGLEY-11579 B74-10140 05

ORTHOTROPIC PLATES

Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)
LANGLEY-11199 B74-10203 09

ORTHOTROPIC SHELLS

Computer program for structural analysis of layered orthotropic ring-stiffened shells of revolution (SALORS): Linear stress analysis option
LANGLEY-11569 B74-10186 09

OSCILLATION DAMPERS

Swashplate feedback control for tilt-rotor aircraft
ARC-10854 B74-10174 06

OSCILLATORS

Minicomputer-controlled frequency generator
NPO-11962 B74-10163 02

OSMOSIS

Domestic wash water reclamation
LANGLEY-11606 B74-10177 04

OXIDATION

In-process oxidation protection in fluxless brazing or diffusion bonding of aluminum alloys
MSC-14435 B74-10096 04

OXIDATION RESISTANCE

Addition of silicon improves oxidation resistance of nickel based superalloys
LEWIS-12138 B74-10007 04
Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)
LEWIS-11930 B74-10016 04

OXYGEN

Lead-oxygen closed-loop battery system
M-FS-23059 B74-10267 06

OXYGEN PRODUCTION

Spacecraft oxygen recovery system
ARC-10868 B74-10220 05

P

P-TYPE SEMICONDUCTORS

Efficiency increased in new solar cell: A Concept
LANGLEY-11174 B74-10090 01

PACKAGING

Toroidal equipment packaging
ARC-10828 B74-10055 03

PACKING

Color-coded area sensitivity maps of photomultipliers
LANGLEY-10320 B74-10259 01

PANELS

Laminating cored, stressed-face, sandwich structures
XLA-11028 B74-10233 06
New insulation attachment method eliminates compatibility bondline stresses
MSC-12615 B74-10269 07

PAPERS

Polyelectrolytes with high charge density
NPO-11918 B74-10159 04
Inspection of transparent surfaces using photosensitive paper
MSC-19442 B74-10224 03

PARABOLIC ANTENNAS

Variable-beamwidth antennas
GSFC-11760 B74-10041 02
Bidirectional zoom antenna
GSFC-11862 B74-10257 01

PARALLEL PROCESSING (COMPUTERS)

Data processor with conditionally supplied clock signals
GSFC-10975 B74-10021 02

PARTICLE ACCELERATOR TARGETS

Long life neutron generator target using deuterium pass-through structure
LEWIS-11866 B74-10063 03
A high yield neutron target
LEWIS-12058 B74-10066 03

PARTICLE DIFFUSION

Long life neutron generator target using deuterium pass-through structure
LEWIS-11866 B74-10063 03

PARTICLE INTERACTIONS

Methods for improved resolution of flow electrophoresis cells
M-FS-22223 B74-10032 04

PARTICLE MASS

Particle impact location detector
GSFC-11829 B74-10230 03

PARTICLE PRODUCTION

Improved dispensing targets for ion beam particle generators
NPO-13112 B74-10108 03

PARTICLE SIZE DISTRIBUTION

Improved high volume air sampler
LEWIS-11644 B74-10080 05

PARTICULATE SAMPLING

Improved high volume air sampler
LEWIS-11644 B74-10080 05

PEENING

Mechanical rod peening
M-FS-23047 B74-10237 07

PERFORMANCE PREDICTION

Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06

Computation of aerodynamic interference between lifting surfaces and lift- and cruise-fans
ARC-10833 B74-10113 09

Reliability data for electronic and electromechanical components: A report
NPO-13153 B74-10280 01

Telecommunications systems design techniques handbook
NPO-13245 B74-10284 02

Thermoelastic analysis of solar cell arrays and their material properties
NPO-13458 B74-10301 03

PETROLOGY

Improved dispensing targets for ion beam particle generators
NPO-13112 B74-10108 03

PHASE COHERENCE

Amplitude-steered, pseudophased antenna array
GSFC-11446 B74-10255 01

PHASE CONTROL

Phased-array antenna phase control circuit using frequency multiplication
ERC-10285 B74-10251 01

PHASE DETECTORS

Frequency discriminator/phase detector
NPO-11515 B74-10098 02

PHASE ERROR

Stable group delay cable
NPO-13138 B74-10295 01

PHASE LOCKED SYSTEMS

Frequency discriminator/phase detector
NPO-11515 B74-10098 02
Digital second-order phase-locked loop
NPO-11905 B74-10274 01

PHASE MODULATION

Dually-mode-locked ND: YAG laser
GSFC-11746 B74-10038 03
Wide deviation phase modulator
LANGLEY-11607 B74-10178 02

PHASE SHIFT

Heart-rate pulse-shift detector
ARC-10729 B74-10196 01

PHASED ARRAYS

Phased-array antenna phase control circuit using frequency multiplication
ERC-10285 B74-10251 01
Amplitude-steered, pseudophased antenna array
GSFC-11446 B74-10255 01

PHOSPHORYLATION

Enzymatic regeneration of adenosine triphosphate cofactor
ARC-10837 B74-10057 04

PHOTOCONDUCTIVE CELLS

Facility for testing solar cells
NPO-11761 B74-10099 02

PHOTOGRAPHIC EQUIPMENT

Vertical copy camera system provides photographs from erts-1 imagery
LEWIS-12140 B74-10009 07
Viewgraph preparation made easier
LANGLEY-11612 B74-10094 03

PHOTOGRAPHIC FILM

Precision glasscutter
LANGLEY-11604 B74-10031 07
Viewgraph preparation made easier
LANGLEY-11612 B74-10094 03
Automatic marker for photographic film
MSC-14705 B74-10152 03

PHOTOGRAPHIC PROCESSING

Vertical copy camera system provides photographs from erts-1 imagery
LEWIS-12140 B74-10009 07

PHOTOGRAPHIC PROCESSING EQUIPMENT

Precision glasscutter
LANGLEY-11604 B74-10031 07

PHOTOGRAPHIC TRACKING

Optical discriminator system
LANGLEY-11580 B74-10139 03

PHOTOMETERS

Digital multichannel photometer
HQ-10791 B74-10200 03

PHOTOMULTIPLIER TUBES

Digital multichannel photometer
HQ-10791 B74-10200 03
Color-coded area sensitivity maps of photomultipliers
LANGLEY-10320 B74-10259 01

PHOTOSENSITIVITY

Inspection of transparent surfaces using photosensitive paper
MSC-19442 B74-10224 03

PIEZOELECTRIC TRANSDUCERS

Process to restore obliterated serial numbers on metal surfaces
LEWIS-12085 B74-10020 07
Probe for measuring turbulent real-time shear-stress waves
ARC-10755 B74-10072 03

Piezoelectric relay
GSFC-11827 B74-10089 01

PIEZORESISTIVE TRANSDUCERS

Low-temperature electrostatic silicon-to-silicon seals using sputtered borosilicate glass
LANGLEY-11589 B74-10263 08

PINS

Pocket gauge for checking insert clocking of multipin circular connectors
NPO-11924 B74-10160 01

PIPES (TUBES)

Modular support blocks for fluid lines
MSC-19335 B74-10023 07
Automatic soldering machine
MSC-19401 B74-10193 06

Explosive welding technique for joining aluminum and steel tubes
MSC-14721 B74-10272 08

PLANETARY ATMOSPHERES

Extendible probe for atmosphere sampling
ARC-10829 B74-10054 03
Method for remotely sensing turbulence of planetary atmospheres
NPO-13154 B74-10168 03

PLANETARY SURFACES

Analysis of orbital heat transfer
ARC-10842 B74-10115 02

PLASMA DIAGNOSTICS

Wavelength-selective, sequential Q-switching laser cavity
LANGLEY-11045 B74-10134 03

PLASMA SPRAYING

Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)
LEWIS-11930 B74-10016 04

PLASTICS

Plastic covering on airfoil structure provides smooth uninterrupted surface
MSC-12631 B74-10270 08
Apparatus for heat treating plastic belts
NPO-13205 B74-10299 02

PLATFORMS

Brake for rollable platform
ARC-10512 B74-10045 06

PLATING

Fabrication of thick structures by sputtering
LEWIS-12331 B74-10126 08

PLOTTING

Generalized curve fit and plotting (GECAP) program
M-FS-22728 B74-10044 09
Computer program for calculating critical speeds of rotating shafts
LEWIS-11910 B74-10128 09

PNEUMATIC CIRCUITS

Pulse-width-modulated servo valve for autopilot system
LANGLEY-11643 B74-10179 06

PNEUMATIC EQUIPMENT

Ignition of sounding rocket motors with hand-pumped air
LANGLEY-11152 B74-10202 03
Mechanical rod peening
M-FS-23047 B74-10237 07

POISSON RATIO

Miniature biaxial strain transducer
LANGLEY-11648 B74-10180 01

POLARIZED LIGHT

Dynamic polarization compensating system for optical communications receiver
GSFC-11782 B74-10182 03

POLARIZERS

Field-sequential stereo television
MSC-12616 B74-10223 03

POLICE

Location of vehicles using AM station broadcasting signals
NPO-13217 B74-10300 02

POLLUTION

Combustion products generating and metering device
GSFC-11095 B74-10036 04

POLYIMIDE RESINS

Pressure application technique for high-temperature composite fabrication
LANGLEY-11601 B74-10141 08

POLYMER CHEMISTRY

New polymer systems: Chain extension by dianhydrides

NPO-13046 B74-10077 04

Polymer compositions suitable for use in enriched oxygen atmospheres

MSC-14618 B74-10154 04

Flame resistant elastic elastomeric fiber

MSC-14331 B74-10157 04

Polyelectrolytes with high charge density

NPO-11918 B74-10159 04

Polymers used to absorb fats and oils:

A concept

NPO-11609 B74-10210 05

POLYMERIZATION

New polymer systems: Chain extension by dianhydrides

NPO-13046 B74-10077 04

New tooth enamel from brushite crystals

ERC-10338 B74-10199 05

POLYMERS

Cushion module for stowing electronic equipment

ARC-10779 B74-10073 04

POLYTETRAFLUOROETHYLENE

Volume-reflecting dielectric heat shield

ARC-10803 B74-10074 04

POLYURETHANE FOAM

Inexpensive lightweight mirror

MSC-14615 B74-10155 05

Metallized polymeric foam material

ARC-10860 B74-10218 04

Moisture-resistant baffle material for fuel tanks

ARC-10861 B74-10219 04

POROUS MATERIALS

Noise suppressor

LANGLEY-11141 B74-10261 03

POSITION (LOCATION)

Particle impact location detector

GSFC-11829 B74-10230 03

Location of vehicles using AM station broadcasting signals

NPO-13217 B74-10300 02

POSITIONING

Reference apparatus for medical ultrasonic transducer

ARC-10753 B74-10197 01

POTABLE WATER

Automated monitoring of recovered water quality

LANGLEY-11203 B74-10029 05

Iodine generator for disinfecting reclaimed water

MSC-14632 B74-10153 05

POWDER METALLURGY

A new nickel-base wrought superalloy for applications up to 1033 K (1400 F)

LEWIS-11827 B74-10002 04

New nickel-base wrought superalloy with applications up to 1253 K (1800 F)

LEWIS-11828 B74-10003 04

POWER CONDITIONING

Radioisotope thermal generator (RTG) power conditioner

LANGLEY-11313 B74-10022 03

POWER EFFICIENCY

Interplex modulation and a suppressed-carrier tracking loop for coherent communications systems

NPO-11572 B74-10209 01

PREAMPLIFIERS

Bio-isolated DC operational amplifier

ARC-10596 B74-10112 01

PREDICTION ANALYSIS TECHNIQUES

Thermoelastic analysis of solar cell arrays and their material properties

NPO-13458 B74-10301 03

PRESSURE BREATHING

Programmed-pressure air supply for positive-pressure breathing system

ARC-10845 B74-10075 05

PRESSURE REGULATORS

Design criteria monograph for pressure regulators, relief valves, check valves, burst disks, and explosive valves

LEWIS-12168 B74-10010 07

Programmed-pressure air supply for positive-pressure breathing system

ARC-10845 B74-10075 05

Design criteria monograph for valve components

LEWIS-12327 B74-10087 06

Therapeutic hand-exercising device with cycling pressure value

LANGLEY-11579 B74-10140 05

Remotely operated gas-pressure regulator and shuttle valve

NPO-13201 B74-10298 07

PRESSURE SENSORS

Electronic high pass filter

LEWIS-11600 B74-10083 02

PRESSURE SWITCHES

Heat-transfer thermal switch

LANGLEY-11232 B74-10092 06

PRESSURE VESSELS

High strength, wire-reinforced electroformed structures

LEWIS-12087 B74-10018 08

Light-weight spherical submergence vessel

ARC-10838 B74-10114 08

A band clamp with a spring toggle lever

MSC-14736 B74-10240 07

PRESSURE WELDING

Fabrication of complex structures or assemblies by hot isostatic pressure (HIP) welding

LEWIS-11490 B74-10124 04

PREVENTION

Polymers used to absorb fats and oils:

A concept

NPO-11609 B74-10210 05

PRINTED CIRCUITS

High-voltage distributors

GSFC-11849 B74-10242 01

Alignment fixture for precision cutting of printed-wiring boards

LANGLEY-11658 B74-10290 01

PRIORITIES

Advanced-priority interrupt module

NPO-13067 B74-10165 02

PROBABILITY DISTRIBUTION FUNCTIONS

Anti-multipath digital signal detector

LANGLEY-11379 B74-10137 02

Micro-organism distribution sampling for bioassays

LANGLEY-10789 B74-10289 05

PROJECTILES

Economical technique for fragmentation testing

ARC-10792 B74-10052 04

PROPELLANT BINDERS

New polymer systems: Chain extension by dianhydrides

NPO-13046 B74-10077 04

PROPELLANT TANKS

Propellant acquisition device for use with a spinning toroidal tank

ARC-10840 B74-10059 06

PROPULSION SYSTEM PERFORMANCE

Numerical program for analysis of three-dimensional supersonic exhaust flow fields (CHAR 3D)

LANGLEY-11596 B74-10236 09

PROSTHETIC DEVICES

Artificial limb connection

KSC-10833 B74-10183 05

PROTECTIVE COATINGS

Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)

LEWIS-11930 B74-10016 04

Detection of cracks in surface insulation

MSC-14187 B74-10095 04

In-process oxidation protection in fluxless brazing or diffusion bonding of aluminum alloys

MSC-14435 B74-10096 04

Moisture-resistant baffle material for fuel tanks

ARC-10861 B74-10219 04

PROTECTORS

Self-protected electrodes limit field-emission current

ERC-10015 B74-10253 01

PROTRACTORS

Pocket gauge for checking insert clocking of multipin circular connectors

NPO-11924 B74-10160 01

PULLEYS

Apparatus for heat treating plastic belts

NPO-13205 B74-10299 02

PULSE CODE MODULATION

Low-distortion receiver for bilevel, baseband PCM waveforms

MSC-14557 B74-10025 02

Dually-mode-locked ND: YAG laser

GSFC-11746 B74-10038 03

PULSE COMMUNICATION

Traffic control system and method

GSFC-10087 B74-10024 02

Dynamic polarization compensating system for optical communications receiver

GSFC-11782 B74-10182 03

PULSE DOPPLER RADAR

Analysis of orbital heat transfer

ARC-10842 B74-10115 02

PULSE DURATION MODULATION

Pulse-width-modulated servo valve for autopilot system

LANGLEY-11643 B74-10179 06

PUMP IMPELLERS

Data summary and computer program for axial-flow pump rotor performance

LEWIS-11920 B74-10127 09

PYRANOMETERS

Remote sunfall monitor: A concept

M-FS-22943 B74-10149 03

PYROHELIOMETERS

Remote sunfall monitor: A concept

M-FS-22943 B74-10149 03

PYROLYSIS

Glass fiber addition strengthens low-density ablative compositions

LANGLEY-11288 B74-10027 04

PYROMETERS

Rotating turbine blade pyrometer

LEWIS-12218 B74-10068 01

PYROTECHNICS

- Battery activation system
ARC-10832 874-10056 03
- PYRRONES (TRADEMARK)**
Thermally-stable, syntactic pyrrone
foams
LANGLEY-11325 874-10135 06

Q

Q FACTORS

- High q band-pass resonators utilizing
composite band-stop resonator pairs
GSFC-10990 874-10035 02

Q SWITCHED LASERS

- Wavelength-selective, sequential Q-
switching laser cavity
LANGLEY-11045 874-10134 03
- Laser-actuated mechanical device
NPO-13105 874-10166 03
- Laser system to detonate explosive
devices
NPO-11743 874-10194 03

QUALITY CONTROL

- Pocket gauge for checking insert clocking
of multipin circular connectors
NPO-11924 874-10160 01
- Nondestructive testing of railroad wheels
and rails by ultrasonics
M-FS-23086 874-10238 06

R

RADIATION COUNTERS

- Coaxial anode improves sensitivity of gas
radiation counters
GSFC-11492 874-10229 03
- Particle impact location detector
GSFC-11829 874-10230 03
- Compact source of soft X-rays
HQ-10732 874-10232 03

RADIATION DETECTORS

- Improved channel multiplier for
radiation-and-particle detectors
NPO-12128 874-10275 03

RADIATION HARDENING

- Radiation hardening of metal-oxide
semiconductor (MOS) devices by boron
GSFC-11425 874-10026 01

RADIATION MEASUREMENT

- Method of measuring the thickness of
radioactive thin films
LEWIS-11971 874-10065 03

RADIATION MEASURING INSTRUMENTS

- Rotating turbine blade pyrometer
LEWIS-12218 874-10068 01
- Pocket-size microwave radiation hazard
detector
NPO-11461 874-10097 02

RADIATION SHIELDING

- Volume-reflecting dielectric heat shield
ARC-10803 874-10074 04

RADIATION SOURCES

- A low cost "Air Mass 2" solar
simulator
LEWIS-12266 874-10086 02

RADIATION THERAPY

- A high yield neutron target
LEWIS-12058 874-10066 03

RADIO CONTROL

- Radio-controlled, sound-operated switch
LANGLEY-11641 874-10143 03

RADIO FILTERS

- Third-order phase-locked loop receiver
NPO-11941 874-10104 02
- Continuous Fourier transform system
ARC-10466 874-10170 02

RADIO FREQUENCY DISCHARGE

- Amplitude-steered, pseudophased
antenna array
GSFC-11446 874-10255 01

RADIO FREQUENCY SHIELDING

- Metallized polymeric foam material
ARC-10860 874-10218 04

RADIO RECEIVERS

- Third-order phase-locked loop receiver
NPO-11941 874-10104 02
- Minicomputer-controlled frequency
generator
NPO-11962 874-10163 02

RADIO SIGNALS

- Location of vehicles using AM station
broadcasting signals
NPO-13217 874-10300 02

RADIO TELEMTRY

- Third-order phase-locked loop receiver
NPO-11941 874-10104 02

RADIO TRANSMISSION

- Method for remotely sensing turbulence
of planetary atmospheres
NPO-13154 874-10168 03

RADIOACTIVE ISOTOPES

- Radioisotope thermal generator (RTG)
power conditioner
LANGLEY-11313 874-10022 03
- Radioisotope heater
ARC-10791 874-10051 03

RADIOGRAPHY

- Improved dispensing targets for ion beam
particle generators
NPO-13112 874-10108 03

RADIOISOTOPE BATTERIES

- Radioisotope thermal generator (RTG)
power conditioner
LANGLEY-11313 874-10022 03
- Economical technique for fragmentation
testing
ARC-10792 874-10052 04

RAIL TRANSPORTATION

- Nondestructive testing of railroad wheels
and rails by ultrasonics
M-FS-23086 874-10238 06

RAILS

- Nondestructive testing of railroad wheels
and rails by ultrasonics
M-FS-23086 874-10238 06

RANDOM SIGNALS

- Optical communication channel simulator
system
GSFC-11877 874-10258 01

RATIOMETERS

- DC-to-AC inverter ratio failure detector
NPO-13160 874-10282 01

REACTOR TECHNOLOGY

- Improved dispensing targets for ion beam
particle generators
NPO-13112 874-10108 03

REBREATHING

- Spacecraft oxygen recovery system
ARC-10868 874-10220 05

RECEIVERS

- Low-distortion receiver for bilevel,
baseband PCM waveforms
MSC-14557 874-10025 02
- Anti-multipath digital signal detector
LANGLEY-11379 874-10137 02

RECONSTRUCTION

- New tooth enamel from brushite
crystals
ERC-10338 874-10199 05

RECORDERS

- Recorder/processor apparatus
GSFC-11553 874-10042 03

RECORDING INSTRUMENTS

- Recorder/processor apparatus
GSFC-11553 874-10042 03
- Magnetometer with miniature transducer
and automatic transducer scanning
apparatus
LANGLEY-11617 874-10142 02

REFLECTANCE

- Volume-reflecting dielectric heat shield
ARC-10803 874-10074 04
- Commercially available black chrome is
an effective solar collector coating
LEWIS-12159 874-10121 04

REFRACTORY MATERIALS

- Glass fiber addition strengthens
low-density ablative compositions
LANGLEY-11288 874-10027 04
- Process for fabrication of stabilized
aluminum phosphate fibers
LANGLEY-11526 874-10185 08
- Advanced tungsten fiber-reinforced nickel
superalloy
LEWIS-12394 874-10248 04

REFRACTORY METAL ALLOYS

- A new nickel-base wrought superalloy
for applications up to 1033 K (1400 F)
LEWIS-11827 874-10002 04
- New nickel-base wrought superalloy with
applications up to 1253 K (1800 F)
LEWIS-11828 874-10003 04
- Addition of silicon improves oxidation
resistance of nickel based superalloys
LEWIS-12138 874-10007 04
- Rapid method for determining nitrogen
in tantalum and niobium alloys
LEWIS-12237 874-10085 04

REFRACTORY METALS

- Binary alloys for refractory-metal
brazing
LEWIS-12184 874-10125 08

REGENERATION (ENGINEERING)

- Self-regenerating desiccant system
M-FS-23057 874-10266 07

REINFORCED PLASTICS

- Criteria for selecting resin matrices for
improved composite strength
LEWIS-12057 874-10005 04
- Thermally-stable, syntactic pyrrone
foams
LANGLEY-11325 874-10135 06

REINFORCEMENT

- Modular support blocks for fluid lines
MSC-19335 874-10023 07

REINFORCEMENT (STRUCTURES)

- High strength, wire-reinforced
electroformed structures
LEWIS-12087 874-10018 08

REINFORCING FIBERS

- Criteria for selecting resin matrices for
improved composite strength
LEWIS-12057 874-10005 04
- Glass fiber addition strengthens
low-density ablative compositions
LANGLEY-11288 874-10027 04
- Advanced fiber-composite hybrids--A
new structural material
LEWIS-12118 874-10247 04
- Advanced tungsten fiber-reinforced nickel
superalloy
LEWIS-12394 874-10248 04

Controlled intermittent interfacial bond
concept for composite materials
LANGLEY-11628 874-10264 04

RELIABILITY ANALYSIS
Reliability data for electronic and
electromechanical components: A report
NPO-13153 874-10280 01

RELIEF VALVES
Design criteria monograph for pressure
regulators, relief valves, check valves, burst
disks, and explosive valves
LEWIS-12168 874-10010 07
Programmed-pressure air supply for
positive-pressure breathing system
ARC-10845 874-10075 05

REMOTE CONTROL
Radio-controlled, sound-operated switch
LANGLEY-11641 874-10143 03
Laser-actuated mechanical device
NPO-13105 874-10166 03
Remotely operated gas-pressure
regulator and shuttle valve
NPO-13201 874-10298 07

REMOTE SENSORS
Time-control system for communication
between data-collection and orbiting
GSFC-11182 874-10088 02
Method for remotely sensing turbulence
of planetary atmospheres
NPO-13154 874-10168 03
Color-coded area sensitivity maps of
photomultipliers
LANGLEY-10320 874-10259 01
Location of vehicles using AM station
broadcasting signals
NPO-13217 874-10300 02

REMOVAL
Straight-line IC removal tool
NPO-13157 874-10281 01

REPORTS
Design criteria monograph for actuators
and operators
LEWIS-12264 874-10061 06
Evaluation of test procedures for
hydrogen environment embrittlement
ARC-10919 874-10222 04
Design criteria monograph for valve
assemblies
LEWIS-12332 874-10227 06
Design criteria monograph on centrifugal
flow turbopumps
LEWIS-12346 874-10228 06

RESINS
Criteria for selecting resin matrices for
improved composite strength
LEWIS-12057 874-10005 04

RESISTANCE
Piezoelectric relay
GSFC-11627 874-10089 01

RESISTANCE THERMOMETERS
Valve degradation detector
ARC-10850 874-10117 03

RESISTORS
Three-point bridge calibration with one
resistor
ARC-10762 874-10047 01

RESOLUTION
Methods for improved resolution of flow
electrophoresis cells
M-FS-22223 874-10032 04
Reduction of quantization error in
measurement of frequency
MSC-14649 874-10191 02

RESONANCE TESTING
Fluid dynamics test method
NPO-11895 874-10211 03

RESONATORS

High q band-pass resonators utilizing
composite band-stop resonator pairs
GSFC-10990 874-10035 02

RIFLES

Economical technique for fragmentation
testing
ARC-10792 874-10052 04

RIGID STRUCTURES

Computer program for buckling loads of
orthotropic laminated stiffened panels
subjected to biaxial in-place loads
(BUCLASP 2)
LANGLEY-11199 874-10203 09

RING STRUCTURES

Design standards for low-profile flanges
M-FS-22708 874-10033 09

ROCKET ENGINE CONTROL

Design criteria monograph for actuators
and operators
LEWIS-12264 874-10061 06

ROCKET ENGINE DESIGN

Design criteria monograph for liquid
propellant gas generators
LEWIS-12139 874-10008 07
Design criteria monograph for valve
components
LEWIS-12327 874-10087 06

ROCKET ENGINES

High strength, wire-reinforced
electroformed structures
LEWIS-12087 874-10018 08
Economical technique for fragmentation
testing
ARC-10792 874-10052 04

ROCKWELL HARDNESS

Lightweight, high speed bearing balls:
A concept
LEWIS-11087 874-10013 06

ROLL FORMING

Cobalt base superalloy has outstanding
properties up to 1478 K (2200 F)
LEWIS-12089 874-10081 03

ROOTS OF EQUATIONS

Zeros of certain cross products of Bessel
functions of fractional order
LEWIS-12221 874-10012 03

ROTATING BODIES

Rotating turbine blade pyrometer
LEWIS-12218 874-10068 01

ROTATING SHAFTS

Computer program for calculating critical
speed of rotating shafts
LEWIS-11910 874-10128 09

ROTOR BLADES (TURBOMACHINERY)

Fabrication of complex structures or
assemblies by hot isostatic pressure (HIP)
welding
LEWIS-11490 874-10124 04

ROTOR SPEED

Computer program for flexible rotor
dynamics analysis
LEWIS-12153 874-10084 09

ROTORS

Computer program for flexible rotor
dynamics analysis
LEWIS-12153 874-10084 09

S**S WAVES**

Probe for measuring turbulent real-time
shear-stress waves
ARC-10755 874-10072 03

SAFETY

Directory of aerospace safety specialized
information sources
LEWIS-12223 874-10019 03

Laser system to detonate explosive
devices
NPO-11743 874-10194 03
Nondestructive testing of railroad wheels
and rails by ultrasonics
M-FS-23086 874-10238 06

SAFETY DEVICES

Fail-safe fire detection system
LEWIS-12238 874-10078 02
Pocket-size microwave radiation hazard
detector
NPO-11461 874-10097 02
Short-range laser obstacle detector
NPO-11856 874-10101 03
Bio-isolated DC operational amplifier
ARC-10596 874-10112 01

SAMPLERS

Radio-controlled, sound-operated switch
LANGLEY-11641 874-10143 03
Remote sunfall monitor: A concept
M-FS-22943 874-10149 03

SAMPLING

Extendible probe for atmosphere
sampling
ARC-10829 874-10054 03
Liquid sample processor
NPO-13136 874-10278 05

SANDWICH STRUCTURES

Criteria for selecting resin matrices for
improved composite strength
LEWIS-12057 874-10005 04
Soft, thermally conductive material
LANGLEY-10850 874-10132 04
Laminating cored, stressed-face,
sandwich structures
XLA-11028 874-10233 06
Advanced fiber-composite hybrids--A
new structural material
LEWIS-12118 874-10247 04

SANITATION

Domestic wash water reclamation
LANGLEY-11606 874-10177 04
Environmental control and waste
management system design concept
LANGLEY-11588 874-10235 06

SCANNING

Magnetometer with miniature transducer
and automatic transducer scanning
apparatus
LANGLEY-11617 874-10142 02
Closed-circuit-television welding-elec-
trode guidance system
M-FS-23026 874-10150 02
Amplitude-steered, pseudophased
antenna array
GSFC-11446 874-10255 01
Color-coded area sensitivity maps of
photomultipliers
LANGLEY-10320 874-10259 01

SEALERS

Semipermanent sealing of leaks in high
vacuum systems
ARC-10881 874-10175 04

SEALING

Low-temperature electrostatic
silicon-to-silicon seals using sputtered
borosilicate glass
LANGLEY-11589 874-10263 08

SEALS (STOPPERS)

Improved circumferential shaft seal
LEWIS-11873 874-10062 07

- Design criteria monograph for valve components
LEWIS-12327 874-10087 06
- SECONDARY FLOW**
Control vane for engine exhaust flow
LANGLEY-11570 874-10138 06
- SELF ADAPTIVE CONTROL SYSTEMS**
Fail-safe fire detection system
LEWIS-12238 874-10078 02
- SELF LUBRICATING MATERIALS**
Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)
LEWIS-11930 874-10016 04
- SEMICONDUCTOR DEVICES**
Improved epitaxial process for fabricating silicon carbide semiconductor devices
LEWIS-12094 874-10017 04
Efficiency increased in new solar cell: A Concept
LANGLEY-11174 874-10090 01
Calorimetric detection of neutral-atom content of ion beam
LANGLEY-11505 874-10184 03
- SENSITIVITY**
Color-coded area sensitivity maps of photomultipliers
LANGLEY-10320 874-10259 01
- SEPARATORS**
Methods for improved resolution of flow electrophoresis cells
M-FS-22223 874-10032 04
Two-phase, passive separator-and-filter assembly
LANGLEY-10976 874-10133 04
Liquid sample processor
NPO-13136 874-10278 05
- SEQUENCING**
Advanced-priority interrupt module
NPO-13067 874-10165 02
- SERVOCONTROL**
Closed-circuit-television de guidance system
M-FS-23026 874-10150 02
Implementation of a self-controlling heater: A concept
GSFC-11752 874-10241 06
Stable group delay cable
NPO-13138 874-10295 01
- SERVOMECHANISMS**
Mechanical coupling for high cyclic loading
LEWIS-11690 874-10001 06
Pulse-width-modulated servo valve for autopilot system
LANGLEY-11643 874-10179 06
- SHADOWS**
Graphics shadowing analysis
M-FS-21406 874-10040 09
- SHAFTS (MACHINE ELEMENTS)**
Improved circumferential shaft seal
LEWIS-11873 874-10062 07
Design criteria monograph for valve components
LEWIS-12327 874-10087 06
- SHAPED CHARGES**
Apparatus for monitoring linear explosive performance
LANGLEY-10800 874-10201 04
- SHEAR STRESS**
Probe for measuring turbulent real-time shear-stress waves
ARC-10755 874-10072 03
- SHELL STABILITY**
Computer program for structural analysis of layered orthotropic ring-stiffened shells of revolution (SALORS): Linear stress analysis option
LANGLEY-11569 874-10186 09
- SHELL THEORY**
Design standards for low-profile flanges
M-FS-22708 874-10033 09
- SHELLS (STRUCTURAL FORMS)**
Computer program for stress, stability, and vibration of complex branched shells of revolution: BOSOR 4
LANGLEY-11209 874-10205 09
- SHIFT REGISTERS**
Synchronized frequency transposer
GSFC-11763 874-10256 01
- SHIPS**
Short-range laser obstacle detector
NPO-11856 874-10101 03
- SHOCK ABSORBERS**
Control of elasticity in cast elastomeric shock/vibration isolators
KSC-10850 874-10039 07
Artificial limb connection
KSC-10833 874-10183 05
- SHOCK RESISTANCE**
Piezoelectric relay
GSFC-11627 874-10089 01
- SHOES**
Ultrasonic scanner for footprint identification
NPO-13055 874-10212 03
- SHORT TAKEOFF AIRCRAFT**
Vented vectoring-nozzle for STOL and V/STOL aircraft
ARC-10839 874-10058 06
- SHRAPNEL**
Economical technique for fragmentation testing
ARC-10792 874-10052 04
- SHRINKAGE**
Apparatus for heat treating plastic belts
NPO-13205 874-10299 02
- SIDE-LOOKING RADAR**
Analysis of orbital heat transfer
ARC-10842 874-10115 02
- SIGNAL ANALYSIS**
Low-distortion receiver for bilevel, baseband PCM waveforms
MSC-14557 874-10025 02
Closed-circuit-television welding-electrode guidance system
M-FS-23026 874-10150 02
- SIGNAL DETECTION**
Frequency discriminator/phase detector
NPO-11515 874-10098 02
- SIGNAL DETECTORS**
Anti-multipath digital signal detector
LANGLEY-11379 874-10137 02
- SIGNAL DISTORTION**
Low-distortion receiver for bilevel, baseband PCM waveforms
MSC-14557 874-10025 02
Dynamic polarization compensating system for optical communications receiver
GSFC-11782 874-10182 03
- SIGNAL PROCESSING**
Low cost instrumentation amplifier
LEWIS-12222 874-10015 01
Data processor with conditionally supplied clock signals
GSFC-10975 874-10021 02
Third-order phase-locked loop receiver
NPO-11941 874-10104 02
- Fast signal averager
ARC-10090 874-10109 02
Decimal digit generator for commutated data: A Concept
ARC-10856 874-10120 01
Continuous Fourier transform system
ARC-10466 874-10170 02
Wide deviation phase modulator
LANGLEY-11607 874-10178 02
Interplex modulation and a suppressed-carrier tracking loop for coherent communications systems
NPO-11572 874-10209 01
Synchronized frequency transposer
GSFC-11763 874-10256 01
Digital second-order phase-locked loop
NPO-11905 874-10274 01
- SIGNAL STABILIZATION**
Electronic high pass filter
LEWIS-11600 874-10083 02
- SIGNAL TO NOISE RATIOS**
Fast signal averager
ARC-10090 874-10109 02
- SILICON**
Low-temperature electrostatic silicon-to-silicon seals using sputtered borosilicate glass
LANGLEY-11589 874-10263 08
- SILICON CARBIDES**
Improved epitaxial process for fabricating silicon carbide semiconductor devices
LEWIS-12094 874-10017 04
- SILICON CONTROLLED RECTIFIERS**
Self-healing fuse
LEWIS-11964 874-10004 02
- SILICON DIOXIDE**
Self-regenerating desiccant system
M-FS-23057 874-10266 07
- SILICONE RUBBER**
Soft, thermally conductive material
LANGLEY-10850 874-10132 04
Semipermanent sealing of leaks in high vacuum systems
ARC-10881 874-10175 04
- SILICONES**
Cushion module for stowing electronic equipment
ARC-10779 874-10073 04
- SILICONIZING**
Addition of silicon improves oxidation resistance of nickel based superalloys
LEWIS-12138 874-10007 04
- SILVER OXIDES**
Silver oxide sorbent for carbon dioxide
ARC-10797 874-10053 04
- SIMULATION**
Self-leveling load table
M-FS-22039 874-10144 06
Space ultrareliable modular computer (SUMC) instruction simulator
M-FS-22697 874-10145 09
Separation dynamics of S-II derivative launch vehicle
M-FS-24325 874-10151 06
Optical communication channel simulator system
GSFC-11877 874-10258 01
- SKIN (STRUCTURAL MEMBER)**
Rapid method for determining nitrogen in tantalum and niobium alloys
LEWIS-12237 874-10085 04
- SKIN TEMPERATURE (BIOLOGY)**
Thermistor holder for skin-temperature measurements
ARC-10855 874-10119 05

SLOT ANTENNAS

Improved circularly polarized antenna
ERC-10214 B74-10250 02

SMOKE

Visualization of smoke stack plume
LANGLEY-11675 B74-10208 04

SOFTNESS

Soft, thermally conductive material.
LANGLEY-10850 B74-10132 04

SOLAR ARRAYS

Solar array deployment from a spinning spacecraft
ARC-10787 B74-10048 06
Self-protecting solid state isolated switch
LEWIS-12268 B74-10069 01

SOLAR CELLS

Self-protecting solid state isolated switch
LEWIS-12268 B74-10069 01
Time-control system for communication between data-collection and orbiting
GSFC-11182 B74-10088 02
Efficiency increased in new solar cell:
A Concept
LANGLEY-11174 B74-10090 01
Facility for testing solar cells
NPO-11761 B74-10099 02
Thermoelastic analysis of solar cell arrays and their material properties
NPO-13458 B74-10301 03

SOLAR COLLECTORS

Commercially available black chrome is an effective solar collector coating
LEWIS-12159 B74-10121 04
Remote sunfall monitor: A concept
M-FS-22943 B74-10149 03
Self-regenerating desiccant system
M-FS-23057 B74-10266 07
Flat device for heat concentration or dispersion
LANGLEY-11699 B74-10291 03

SOLAR ENERGY

Mechanical solar motor: A concept
M-FS-23062 B74-10292 07

SOLAR SIMULATORS

Casting copper to tungsten for high-power arc lamp cathodes
LEWIS-12169 B74-10011 04
A low cost "Air Mass 2" solar simulator
LEWIS-12266 B74-10086 02
Facility for testing solar cells
NPO-11761 B74-10099 02
Improved xenon lamp for solar simulators: A concept
NPO-13128 B74-10195 03

SOLAR SPECTRA

A low cost "Air Mass 2" solar simulator
LEWIS-12266 B74-10086 02

SOLAR SPECTROMETERS

Remote sunfall monitor: A concept
M-FS-22943 B74-10149 03

SOLDERING

Automatic soldering machine
MSC-19401 B74-10193 06

SOLID PROPELLANT ROCKET ENGINES

Ignition of sounding rocket motors with hand-pumped air
LANGLEY-11152 B74-10202 03

SOLID ROCKET BINDERS

New polymer systems: Chain extension by dianhydrides
NPO-13046 B74-10077 04

SOLID ROCKET PROPELLANTS

New polymer systems: Chain extension by dianhydrides
NPO-13046 B74-10077 04

SOLID STATE DEVICES

High voltage solid-state relay
LEWIS-12096 B74-10006 01
Low cost instrumentation amplifier
LEWIS-12222 B74-10015 01
Improved epitaxial process for fabricating silicon carbide semiconductor devices
LEWIS-12094 B74-10017 04
Radiation hardening of metal-oxide semiconductor (MOS) devices by boron
GSFC-11425 B74-10026 01
Self-protecting solid state isolated switch
LEWIS-12268 B74-10069 01
Thin-film temperature sensor
NPO-11775 B74-10100 01
Improved solid-state triode construction
NPO-13064 B74-10107 01
Logarithmic-function generator
ERC-10267 B74-10285 02

SORBENTS

Silver oxide sorbent for carbon dioxide
ARC-10797 B74-10053 04

SOUND WAVES

Zeros of certain cross products of Bessel functions of fractional order
LEWIS-12221 B74-10012 03
High-directivity acoustic antenna
ARC-10789 B74-10050 02

SOUNDING ROCKETS

Ignition of sounding rocket motors with hand-pumped air
LANGLEY-11152 B74-10202 03

SPACE ERECTABLE STRUCTURES

Solar array deployment from a spinning spacecraft
ARC-10787 B74-10048 06

SPACE PROBES

Extendible probe for atmosphere sampling
ARC-10829 B74-10054 03
Toroidal equipment packaging
ARC-10828 B74-10055 03
Volume-reflecting dielectric heat shield
ARC-10803 B74-10074 04

SPACE SHUTTLES

Rapid method for determining nitrogen in tantalum and niobium alloys
LEWIS-12237 B74-10085 04

SPACE SUITS

Polymer compositions suitable for use in enriched oxygen atmospheres
MSC-14618 B74-10154 04

SPACECRAFT CABIN ATMOSPHERES

Spacecraft oxygen recovery system
ARC-10868 B74-10220 05

SPACECRAFT COMMUNICATION

Time-control system for communication between data-collection and orbiting
GSFC-11182 B74-10088 02

SPACECRAFT CONTROL

Propellant acquisition device for use with a spinning toroidal tank
ARC-10840 B74-10059 06

Design criteria monograph for actuators and operators
LEWIS-12264 B74-10061 06

SPACECRAFT DOCKING

Self-leveling load table
M-FS-22039 B74-10144 06

SPACECRAFT INSTRUMENTS

Solar array deployment from a spinning spacecraft
ARC-10787 B74-10048 06
Economical technique for fragmentation testing
ARC-10792 B74-10052 04

SPACECRAFT LAUNCHING

Computer program for spacecraft-booster separation spring selection, set composition, and location determination
GSFC-11616 B74-10037 09

SPACECRAFT ORBITS

Analysis of orbital heat transfer
ARC-10844 B74-10116 03

SPACECRAFT POWER SUPPLIES

Self-protecting solid state isolated switch
LEWIS-12268 B74-10069 01

SPACECRAFT TRACKING

Third-order phase-locked loop receiver
NPO-11941 B74-10104 02

SPACING

Depositing spacing layers on magnetic film with liquid phase epitaxy
LANGLEY-11528 B74-10262 01

SPECTRAL EMISSION

Measurement of temperature profiles in hot gases and flames
LEWIS-12055 B74-10060 03

SPECTROMETERS

Spectrometer
GSFC-11694 B74-10181 03

SPECTRUM ANALYSIS

Continuous Fourier transform system
ARC-10466 B74-10170 02

SPHERICAL TANKS

Light-weight spherical submergence vessel
ARC-10838 B74-10114 08

SPIN STABILIZATION

Propellant acquisition device for use with a spinning toroidal tank
ARC-10840 B74-10059 06

SPLINES

Flight tests of vortex-attenuating splines
LANGLEY-11645 B74-10187 03

SPRAYED COATINGS

Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)
LEWIS-11930 B74-10016 04

SPRINGS (ELASTIC)

Computer program for spacecraft-booster separation spring selection, set composition, and location determination
GSFC-11616 B74-10037 09

A band clamp with a spring toggle lever
MSC-14736 B74-10240 07

SPUTTERING

Fabrication of thick structures by sputtering
LEWIS-12331 B74-10126 08

STABILITY

Modular support blocks for fluid lines
MSC-19335 B74-10023 07

STABILIZERS (AGENTS)

Process for fabrication of stabilized aluminum phosphate fibers
LANGLEY-11526 B74-10185 08

STAGE SEPARATION

Separation dynamics of S-II derivative launch vehicle
M-FS-24325 B74-10151 06

STAINING

Automated single-slide staining system
LANGLEY-11649 B74-10188 05

STAINLESS STEELS

Explosive welding technique for joining
aluminum and steel tubes
MSC-14721 B74-10272 08

STANDARDS

Design criteria monograph for valve
components
LEWIS-12327 B74-10087 06

STATISTICAL ANALYSIS

Generalized curve fit and plotting
(GECAP) program
M-FS-22728 B74-10044 09

STATISTICAL MECHANICS

Analysis of orbital heat transfer
ARC-10844 B74-10116 03

STEAM

Computer program for calculating water
and steam properties
LEWIS-12206 B74-10123 09

STEERABLE ANTENNAS

High-directivity acoustic antenna
ARC-10789 B74-10050 02

STEREOTELEVISION

Field-sequential stereo television
MSC-12616 B74-10223 03

STORAGE STABILITY

Cushion module for stowing electronic
equipment
ARC-10779 B74-10073 04

STRAIN GAGES

Miniature biaxial strain transducer
LANGLEY-11648 B74-10180 01
Strain gauge sensitivity improved by
using a composite beam
NPO-13170 B74-10297 07

STRESS (PHYSIOLOGY)

Liquid-cooled liner for helmets
ARC-10534 B74-10249 05

STRESS ANALYSIS

Design standards for low-profile flanges
M-FS-22708 B74-10033 09
Computer program for flexible rotor
dynamics analysis
LEWIS-12153 B74-10084 09

Computer program for structural analysis
of layered orthotropic ring-stiffened shells
of revolution (SALORS): Linear stress
analysis option
LANGLEY-11569 B74-10186 09

Computer program for stress, stability,
and vibration of complex branched shells
of revolution: BOSOR 4
LANGLEY-11209 B74-10205 09

STRESS MEASUREMENT

Nondestructive testing of railroad wheels
and rails by ultrasonics
M-FS-23086 B74-10238 06

STRESS WAVES

Probe for measuring turbulent real-time
shear-stress waves
ARC-10755 B74-10072 03

STRETCHING

Apparatus for heat treating plastic belts
NPO-13205 B74-10299 02

STRUCTURAL ANALYSIS

Suppression of bending motion in elastic
bodies
XAC-05632 B74-10070 06

Computer program for buckling loads of
orthotropic laminated stiffened panel
subjected to biaxial in-place loads
(BUCLASP 2)
LANGLEY-11199 B74-10203 09

Computer program for stresses and
buckling of heated composite-stiffened
panels and other structures (BUCLASP 3)
LANGLEY-11533 B74-10204 09

STRUCTURAL DESIGN

Data summary and computer program
for axial-flow pump rotor performance
LEWIS-11920 B74-10127 09

Computer program for stress, stability,
and vibration of complex branched shells
of revolution: BOSOR 4
LANGLEY-11209 B74-10205 09

Design criteria monograph for valve
assemblies
LEWIS-12332 B74-10227 06

Design criteria monograph on centrifugal
flow turbopumps
LEWIS-12346 B74-10228 06

STRUCTURAL RELIABILITY

Lightweight, high speed bearing balls:
A concept
LEWIS-11087 B74-10013 06

Guidebook of nondestructive evaluation
techniques for materials and structures
LEWIS-12272 B74-10122 04

STRUCTURAL STABILITY

Modular support blocks for fluid lines
MSC-19335 B74-10023 07

Light-weight spherical submergence
vessel
ARC-10838 B74-10114 08

Thermally-stable, syntactic pyrrone
foams
LANGLEY-11325 B74-10135 06

Laminating cored, stressed-face,
sandwich structures
XLA-11028 B74-10233 06

Improved circuit-board interconnectors
MSC-12661 B74-10239 01

Advanced fiber-composite hybrids--A
new structural material
LEWIS-12118 B74-10247 04

STRUCTURAL STRAIN

Semipermanent sealing of leaks in high
vacuum systems
ARC-10881 B74-10175 04

STRUCTURAL VIBRATION

Dynamic transformation method
M-FS-22848 B74-10076 06

STRUTS

Expandable space frames
ERC-10365 B74-10252 06

SUBREFLECTORS

Variable-beamwidth antennas
GSFC-11760 B74-10041 02

SUBSONIC FLOW

Prediction of unsteady aerodynamic
loadings caused by trailing-edge
control-surface motions in subsonic
compressible flow
LANGLEY-11175 B74-10091 06

SUBSTRATES

A method for polycrystalline silicon
delineation applicable to a double-diffused
MOS transistor
LANGLEY-11536 B74-10234 01

SUPERCONDUCTING MAGNETS

Improved thermal isolation for
superconducting magnet systems
NPO-11875 B74-10158 02

SUPERSONIC JET FLOW

Numerical program for analysis of
three-dimensional supersonic exhaust flow
fields (CHAR 3D)
LANGLEY-11596 B74-10236 09

SUPERSONIC TRANSPORTS

Traffic control system and method
GSFC-10087 B74-10024 02

SUPERSONIC TURBINES

Mechanical coupling for high cyclic
loading
LEWIS-11690 B74-10001 06

SUPPORTS

Modular support blocks for fluid lines
MSC-19335 B74-10023 07

Expandable space frames
ERC-10365 B74-10252 06

SURFACE CRACKS

Detection of cracks in surface
insulation
MSC-14187 B74-10095 04

SURFACE DIFFUSION

A method for polycrystalline silicon
delineation applicable to a double-diffused
MOS transistor
LANGLEY-11536 B74-10234 01

SURFACE FINISHING

Process to restore obliterated serial
numbers on metal surfaces
LEWIS-12085 B74-10020 07

SURFACE ROUGHNESS

Surface roughness measured by optical
signatures
ARC-10853 B74-10118 03

Plastic covering on airfoil structure
provides smooth uninterrupted surface
MSC-12631 B74-10270 08

SURFACE TEMPERATURE

Rotating turbine blade pyrometer
LEWIS-12218 B74-10068 01

SURGERY

Artificial limb connection
KSC-10833 B74-10183 05

SUSPENDING (HANGING)

Improved magnetic suspension
technique
GSFC-11079 B74-10254 03

SWITCHES

Piezoelectric relay
GSFC-11627 B74-10089 01

Heat-transfer thermal switch
LANGLEY-11232 B74-10092 06

SWITCHING

Modular digital computer system
design
M-FS-22935 B74-10034 09

SWITCHING CIRCUITS

Self-healing fuse
LEWIS-11964 B74-10004 02

High voltage solid-state relay
LEWIS-12096 B74-10006 01

Data processor with conditionally
supplied clock signals
GSFC-10975 B74-10021 02

Soft, thermally conductive material
LANGLEY-10850 B74-10132 04

SYSTEM FAILURES

Automated maintenance for complex
hybrid systems
NPO-13143 B74-10279 09

SYSTEMS ENGINEERING

Automated maintenance for complex
hybrid systems
NPO-13143 B74-10279 09

Telecommunications systems design
techniques handbook
NPO-13245 B74-10284 02

T

TABLES (DATA)

Binary alloys for refractory-metal brazing

LEWIS-12184 B74-10125 08

Reliability data for electronic and electromechanical components: A report
NPO-13153 B74-10280 01

TANK GEOMETRY

Propellant acquisition device for use with a spinning toroidal tank
ARC-10840 B74-10059 06

TANKS (CONTAINERS)

A band clamp with a spring toggle lever
MSC-14736 B74-10240 07

TANTALUM ALLOYS

Rapid method for determining nitrogen in tantalum and niobium alloys
LEWIS-12237 B74-10085 04

TARGET THICKNESS

Long life neutron generator target using deuterium pass-through structure
LEWIS-11866 B74-10063 03

Method of measuring the thickness of radioactive thin films
LEWIS-11971 B74-10065 03

A high yield neutron target
LEWIS-12058 B74-10066 03

TEETH

New tooth enamel from brushite crystals
ERC-10338 B74-10199 05

TELECOMMUNICATION

Dually-mode-locked ND: YAG laser
GSFC-11746 B74-10038 03

Method for remotely sensing turbulence of planetary atmospheres
NPO-13154 B74-10168 03

Continuous Fourier transform system
ARC-10466 B74-10170 02

Telecommunications systems design techniques handbook
NPO-13245 B74-10284 02

High-efficiency multifrequency feed
GSFC-11909 B74-10288 02

High-speed fault-tolerant telemetry/computer interface
NPO-13139 B74-10296 02

TELEMETRY

Low-distortion receiver for bilevel, baseband PCM waveforms
MSC-14557 B74-10025 02

Wireless telemetry system for floating bodies
KSC-10855 B74-10028 06

Time-control system for communication between data-collection and orbiting
GSFC-11182 B74-10088 02

Spacecraft attitude determination by fanscan technique
ARC-10827 B74-10198 02

Interplex modulation and a suppressed-carrier tracking loop for coherent communications systems
NPO-11572 B74-10209 01

TEMPERATURE COMPENSATION

Self-leveling load table
M-FS-22039 B74-10144 06

TEMPERATURE CONTROL

Heat-transfer thermal switch
LANGLEY-11232 B74-10092 06

TEMPERATURE DISTRIBUTION

Rotating turbine blade pyrometer
LEWIS-12218 B74-10068 01

TEMPERATURE EFFECTS

Analysis of orbital heat transfer
ARC-10844 B74-10116 03

Stable group delay cable
NPO-13138 B74-10295 01

TEMPERATURE GRADIENTS

Valve degradation detector
ARC-10850 B74-10117 03

TEMPERATURE MEASUREMENT

Thermistor holder for skin-temperature measurements
ARC-10855 B74-10119 05

TEMPERATURE MEASURING INSTRUMENTS

Thin-film temperature sensor
NPO-11775 B74-10100 01

TEMPERATURE PROFILES

Measurement of temperature profiles in hot gases and flames
LEWIS-12055 B74-10060 03

TEMPLATES

Alignment fixture for precision cutting of printed-wiring boards
LANGLEY-11658 B74-10290 01

TENSILE STRENGTH

High-temperature tensile tester for ceramics
ARC-10822 B74-10244 04

High-strength alloy with resistance to hydrogen-environment embrittlement
M-FS-19234 B74-10265 04

TEST FACILITIES

Facility for testing solar cells
NPO-11761 B74-10099 02

Improved xenon lamp for solar simulators: A concept
NPO-13128 B74-10195 03

THEORETICAL PHYSICS

Zeros of certain cross products of Bessel functions of fractional order
LEWIS-12221 B74-10012 03

THERAPY

Therapeutic hand-exercising device with cycling pressure valve
LANGLEY-11579 B74-10140 05

THERMAL ABSORPTION

Remote sunfall monitor: A concept
M-FS-22943 B74-10149 03

THERMAL BUCKLING

Computer program for stresses and buckling of heated composite-stiffened panels and other structures (BUCLASP 3)
LANGLEY-11533 B74-10204 09

THERMAL CONDUCTIVITY

Throttleable heat pipe
ARC-10848 B74-10173 03

THERMAL CONDUCTORS

Soft, thermally conductive material
LANGLEY-10850 B74-10132 04

THERMAL EMISSION

Radioisotope heater
ARC-10791 B74-10051 03

THERMAL ENERGY

Radioisotope thermal generator (RTG) power conditioner
LANGLEY-11313 B74-10022 03

THERMAL EXPANSION

Mechanical solar motor: A concept
M-FS-23062 B74-10292 07

THERMAL INSULATION

Detection of cracks in surface insulation
MSC-14187 B74-10095 04

New insulation attachment method eliminates compatibility bondline stresses
MSC-12615 B74-10269 07

THERMAL PROTECTION

Volume-reflecting dielectric heat shield
ARC-10803 B74-10074 04

Control vane for engine exhaust flow
LANGLEY-11570 B74-10138 06

THERMAL RESISTANCE

Process for fabrication of stabilized aluminum phosphate fibers
LANGLEY-11526 B74-10185 08

THERMAL STABILITY

Heat-transfer thermal switch
LANGLEY-11232 B74-10092 06

Temperature compensation of digital inertial sensors
NPO-13044 B74-10106 02

Thermally-stable, syntactic pyrrone foams
LANGLEY-11325 B74-10135 06

Improved circuit-board interconnectors
MSC-12661 B74-10239 01

Implementation of a self-controlling heater: A concept
GSFC-11752 B74-10241 06

THERMAL STRESSES

Semipermanent sealing of leaks in high vacuum systems
ARC-10881 B74-10175 04

Computer program for stresses and buckling of heated composite-stiffened panels and other structures (BUCLASP 3)
LANGLEY-11533 B74-10204 09

Thermoelastic analysis of solar cell arrays and their material properties
NPO-13458 B74-10301 03

THERMIONIC CATHODES

Casting copper to tungsten for high-power arc lamp cathodes
LEWIS-12169 B74-10011 04

THERMIONIC CONVERTERS

Radioisotope thermal generator (RTG) power conditioner
LANGLEY-11313 B74-10022 03

THERMIONIC DIODES

Improved control for nuclear/thermionic power source: A concept
NPO-13114 B74-10167 03

THERMISTORS

Valve degradation detector
ARC-10850 B74-10117 03

Thermistor holder for skin-temperature measurements
ARC-10855 B74-10119 05

THERMODYNAMIC CYCLES

Computer program for calculating water and steam properties
LEWIS-12206 B74-10123 09

THERMODYNAMIC PROPERTIES

Computer program for calculating water and steam properties
LEWIS-12206 B74-10123 09

THERMOELECTRIC GENERATORS

Radioisotope thermal generator (RTG) power conditioner
LANGLEY-11313 B74-10022 03

THICK FILMS

A high yield neutron target
LEWIS-12058 B74-10066 03

THIN FILMS

Method of measuring the thickness of radioactive thin films
LEWIS-11971 B74-10065 03

Thin-film temperature sensor
NPO-11775 B74-10100 01

THIN WALLED SHELLS

Computer program for structural analysis of layered orthotropic ring-stiffened shells of revolution (SALORS): Linear stress analysis option
 LANGLEY-11569 B74-10186 09

THRESHOLD DETECTORS (DOSIMETERS)

Combustion products generating and metering device
 GSFC-11095 B74-10036 04

THRESHOLD GATES

High voltage solid-state relay
 LEWIS-12096 B74-10006 01
 Low-distortion receiver for bilevel, baseband PCM waveforms
 MSC-14557 B74-10025 02
 Radiation hardening of metal-oxide semiconductor (MOS) devices by boron
 GSFC-11425 B74-10026 01

THROTTLING

Shutoff and throttling valve
 NPO-11951 B74-10105 07
 Throttleable heat pipe
 ARC-10848 B74-10173 03

THRUST AUGMENTATION

Reversed cowl-flap thrust augmentor
 ARC-10754 B74-10046 06

THRUST CHAMBERS

Design criteria monograph for liquid propellant gas generators
 LEWIS-12139 B74-10008 07
 Fabrication of complex structures or assemblies by hot isostatic pressure (HIP) welding
 LEWIS-11490 B74-10124 04
 Fabrication of thick structures by sputtering
 LEWIS-12331 B74-10126 08

THRUST VECTOR CONTROL

Thrust vector control for V/STOL aircraft
 ARC-10788 B74-10049 06
 Vented vectoring-nozzle for STOL and V/STOL aircraft
 ARC-10839 B74-10058 06

TILTING ROTORS

Swashplate feedback control for tilt-rotor aircraft
 ARC-10854 B74-10174 06

TIME SIGNALS

Data processor with conditionally supplied clock signals
 GSFC-10975 B74-10021 02

TIMING DEVICES

Time-control system for communication between data-collection and orbiting
 GSFC-11182 B74-10088 02

TITANIUM

Long life neutron generator target using deuterium pass-through structure
 LEWIS-11866 B74-10063 03
 Method of measuring the thickness of radioactive thin films
 LEWIS-11971 B74-10065 03
 A high yield neutron target
 LEWIS-12058 B74-10066 03

TOOLS

Bolt installation tool for tightening large nuts and bolts
 NPO-13059 B74-10164 07
 Automatic soldering machine
 MSC-19401 B74-10193 06
 Mechanical rod peening
 M-FS-23047 B74-10237 07
 Straight-line IC removal tool
 NPO-13157 B74-10281 01

TOPOLOGY

Generalized current distribution rule
 LANGLEY-11565 B74-10093 02

TOROIDAL SHELLS

Toroidal equipment packaging
 ARC-10828 B74-10055 03
 Propellant acquisition device for use with a spinning toroidal tank
 ARC-10840 B74-10059 06

TORSIONAL STRESS

Bolt installation tool for tightening large nuts and bolts
 NPO-13059 B74-10164 07

TRAJECTORY MEASUREMENT

Micrometeoroid composition analyzer
 GSFC-11892 B74-10287 01

TRANSDUCERS

Electronic high pass filter
 LEWIS-11600 B74-10083 02
 Magnetometer with miniature transducer and automatic transducer scanning apparatus
 LANGLEY-11617 B74-10142 02
 Miniature biaxial strain transducer
 LANGLEY-11648 B74-10180 01

TRANSFER FUNCTIONS

Three-point bridge calibration with one resistor
 ARC-10762 B74-10047 01
 Continuous Fourier transform system
 ARC-10466 B74-10170 02

TRANSFORMATIONS (MATHEMATICS)

Dynamic transformation method
 M-FS-22848 B74-10076 06

TRANSIENT RESPONSE

System for measuring transients in fluid flow
 ARC-10852 B74-10217 03

TRANSISTORS

A method for polycrystalline silicon delineation applicable to a double-diffused MOS transistor
 LANGLEY-11536 B74-10234 01

TRANSITION LAYERS

Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow
 LEWIS-12178 B74-10129 09

TRANSMISSION FLUIDS

Improved circumferential shaft seal
 LEWIS-11873 B74-10062 07

TRANSMISSION LINES

High q band-pass resonators utilizing composite band-stop resonator pairs
 GSFC-10990 B74-10035 02

TRANSMITTERS

Dually-mode-locked ND: YAG laser
 GSFC-11746 B74-10038 03

TRANSONIC SPEED

Computer program for steamtube curvature analysis: Analytical method
 LANGLEY-11535 B74-10206 09

TRANSPARENCY

Inspection of transparent surfaces using photosensitive paper
 MSC-19442 B74-10224 03

TRANSPORT AIRCRAFT

Computation of aerodynamic interference between lifting surfaces and lift- and cruise-fans
 ARC-10833 B74-10113 09

TRANSPORT PROPERTIES

Computer program for calculating water and steam properties
 LEWIS-12206 B74-10123 09

TRIODES

Improved solid-state triode construction
 NPO-13064 B74-10107 01
 Graphite ionization vacuum gauge
 LANGLEY-11338 B74-10136 03

TRITIUM

Long life neutron generator target using deuterium pass-through structure
 LEWIS-11866 B74-10063 03
 Method of measuring the thickness of radioactive thin films
 LEWIS-11971 B74-10065 03
 A high yield neutron target
 LEWIS-12058 B74-10066 03

TUBE ANODES

Coaxial anode improves sensitivity of gas radiation counters
 GSFC-11492 B74-10229 03

TUNGSTEN

Casting copper to tungsten for high-power arc lamp cathodes
 LEWIS-12169 B74-10011 04
 High strength nickel base alloy, WAZ-16, for applications up to 2200 F
 LEWIS-12270 B74-10082 04
 Advanced tungsten fiber-reinforced nickel superalloy
 LEWIS-12394 B74-10248 04

TURBINE BLADES

Rotating turbine blade pyrometer
 LEWIS-12218 B74-10068 01
 Fabrication of complex structures or assemblies by hot isostatic pressure (HIP) welding
 LEWIS-11490 B74-10124 04

TURBINE ENGINES

Computer program for predicting off-design performance of centrifugal compressors
 LEWIS-12186 B74-10067 09

TURBINE INSTRUMENTS

High strength nickel base alloy, WAZ-16, for applications up to 2200 F
 LEWIS-12270 B74-10082 04

TURBINE PUMPS

Design criteria monograph on turbopump shafts and couplings
 LEWIS-12204 B74-10014 07

TURBINE WHEELS

A new nickel-base wrought superalloy for applications up to 1033 K (1400 F)
 LEWIS-11827 B74-10002 04
 New nickel-base wrought superalloy with applications up to 1253 K (1800 F)
 LEWIS-11828 B74-10003 04

TURBINES

Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)
 LEWIS-11930 B74-10016 04

TURBOJET ENGINE CONTROL

Vented vectoring-nozzle for STOL and V/STOL aircraft
 ARC-10839 B74-10058 06

TURBOMACHINERY

Computer program for calculating velocities and streamlines on mid-channel flow surface of axial or mixed-flow turbomachine
 LEWIS-12129 B74-10130 09
 Design criteria monograph on centrifugal flow turbopumps
 LEWIS-12346 B74-10228 06

TURBOSHAFTS

Design criteria monograph on turbopump shafts and couplings
 LEWIS-12204 B74-10014 07

TURBULENT FLOW

Probe for measuring turbulent real-time shear-stress waves
ARC-10755 B74-10072 03

U**ULNA**

In vivo measurement of mechanical impedance of bone
ARC-10857 B74-10245 05

ULTRASONIC TESTS

Ultrasonic scanner for footprint identification
NPO-13055 B74-10212 03
Nondestructive testing of railroad wheels and rails by ultrasonics
M-FS-23086 B74-10238 06

ULTRASONIC WAVE TRANSDUCERS

Reference apparatus for medical ultrasonic transducer
ARC-10753 B74-10197 01

ULTRASONICS

Process to restore obliterated serial numbers on metal surfaces
LEWIS-12085 B74-10020 07

ULTRAVIOLET PHOTOMETRY

Visualization of smoke stack plume
LANGLEY-11675 B74-10208 04

ULTRAVIOLET RADIATION

Improved channel multiplier for radiation-and-particle detectors
NPO-12128 B74-10275 03

ULTRAVIOLET SPECTROMETERS

Spectrometer
GSFC-11694 B74-10181 03

UNIVAC COMPUTERS

Model optimization using statistical estimation
M-FS-22873 B74-10189 09
FORTRAN automatic code evaluation system (FACES)
M-FS-22910 B74-10190 09
Eigenvalue algorithm based on a combined Sturm sequence and inverse iteration technique (EASI)
NPO-13368 B74-10215 09

UNIVAC 1108 COMPUTER

Design standards for low-profile flanges
M-FS-22708 B74-10033 09
Marshall information retrieval and display system (MIRADS)
M-FS-22536 B74-10043 09
Dynamic transformation method
M-FS-22848 B74-10076 06
Computer program for calculating water and steam properties
LEWIS-12206 B74-10123 09
Eigenfunction solution of damped structural systems: DAMP
NPO-13480 B74-10169 09
Computerized logic design of digital circuits
M-FS-22401 B74-10225 09

UNMANNED SPACECRAFT

Spacecraft attitude determination by fanscan technique
ARC-10827 B74-10198 02

URINALYSIS

Automated drug identification system
NPO-13063 B74-10213 05

URINE

Improved methods for counting bacteria in physiological fluids
GSFC-11917 B74-10231 05

V**V/STOL AIRCRAFT**

Thrust vector control for V/STOL aircraft
ARC-10788 B74-10049 06
Vented vectoring-nozzle for STOL and V/STOL aircraft
ARC-10839 B74-10058 06
Investigation of exit-velocity stratification effects on jets in a crossflow (STRJET)
LANGLEY-11581 B74-10207 09
Calculation of aerodynamic characteristics of STOL aircraft
ARC-10882 B74-10221 09

VACUUM DEPOSITION

Casting copper to tungsten for high-power arc lamp cathodes
LEWIS-12169 B74-10011 04

VACUUM GAGES

Graphite ionization vacuum gauge
LANGLEY-11338 B74-10136 03

VACUUM TUBES

Integrated structure vacuum tube: A Concept
ARC-10445 B74-10110 01
Self-protected electrodes limit field-emission current
ERC-10015 B74-10253 01

VALVES

Design criteria monograph for valve components
LEWIS-12327 B74-10087 06
Valve degradation detector
ARC-10850 B74-10117 03
Therapeutic hand-exercising device with cycling pressure valve
LANGLEY-11579 B74-10140 05
Throttleable heat pipe
ARC-10848 B74-10173 03
System for measuring transients in fluid flow
ARC-10852 B74-10217 03
Design criteria monograph for valve assemblies
LEWIS-12332 B74-10227 06
Remotely operated gas-pressure regulator and shuttle valve
NPO-13201 B74-10298 07

VANES

Control vane for engine exhaust flow
LANGLEY-11570 B74-10138 06

VAPORIZING

Detection of cracks in surface insulation
MSC-14187 B74-10095 04
Flat device for heat concentration or dispersion
LANGLEY-11699 B74-10291 03

VELOCITY DISTRIBUTION

Computer program for calculating velocities and streamlines on mid-channel flow surface of axial or mixed-flow turbomachine
LEWIS-12129 B74-10130 09

VELOCITY MEASUREMENT

Particle impact location detector
GSFC-11829 B74-10230 03
Micrometeoroid composition analyzer
GSFC-11892 B74-10287 01

VIBRATION

Piezoelectric relay
GSFC-11627 B74-10089 01
Dynamometer for measuring machining forces in two perpendicular directions
M-FS-22899 B74-10148 07

VIBRATION EFFECTS

Computer program for stress, stability, and vibration of complex branched shells of revolution: BOSOR 4
LANGLEY-11209 B74-10205 09

VIBRATION ISOLATORS

Modular support blocks for fluid lines
MSC-19335 B74-10023 07
Control of elasticity in cast elastomeric shock/vibration isolators
KSC-10850 B74-10039 07
Cushion module for stowing electronic equipment
ARC-10779 B74-10073 04

VIBRATION MODE

Dynamic transformation method
M-FS-22848 B74-10076 06

VIBRATORY LOADS

Swashplate feedback control for tilt-rotor aircraft
ARC-10854 B74-10174 06

VIDEO EQUIPMENT

Graphics shadowing analysis
M-FS-21406 B74-10040 09
Recorder/processor apparatus
GSFC-11553 B74-10042 03
Field-sequential stereo television
MSC-12616 B74-10223 03

VIEWING

Optical discriminator system
LANGLEY-11580 B74-10139 03
Field-sequential stereo television
MSC-12616 B74-10223 03

VISUAL OBSERVATION

Flight tests of vortex-attenuating splines
LANGLEY-11645 B74-10187 03

VITREOUS MATERIALS

Artificial limb connection
KSC-10833 B74-10183 05

VOLTAGE REGULATORS

Self-protecting solid state isolated switch
LEWIS-12268 B74-10069 01
Improved control for nuclear/thermionic power source: A concept
NPO-13114 B74-10167 03

VOLUMETRIC ANALYSIS

Volume measuring system
MSC-13972 B74-10271 03

VORTICES

Flight tests of vortex-attenuating splines
LANGLEY-11645 B74-10187 03

W**WARNING SYSTEMS**

Combustion products generating and metering device
GSFC-11095 B74-10036 04
Fail-safe fire detection system
LEWIS-12238 B74-10078 02
Pocket-size microwave radiation hazard detector
NPO-11461 B74-10097 02
Short-range laser obstacle detector
NPO-11856 B74-10101 03
G-load indicator and warning device for aircraft
ARC-10806 B74-10171 02

WASTE DISPOSAL

Environmental control and waste management system design concept
LANGLEY-11588 B74-10235 06

WATER

Computer program for calculating water
and steam properties
LEWIS-12206 B74-10123 09

WATER MANAGEMENT

Color-coded area sensitivity maps of
photomultipliers
LANGLEY-10320 B74-10259 01

WATER POLLUTION

Polymers used to absorb fats and oils:
A concept
NPO-11609 B74-10210 05

Color-coded area sensitivity maps of
photomultipliers
LANGLEY-10320 B74-10259 01

WATER QUALITY

Automated monitoring of recovered
water quality
LANGLEY-11203 B74-10029 05

WATER RECLAMATION

Automated monitoring of recovered
water quality
LANGLEY-11203 B74-10029 05

Domestic wash water reclamation
LANGLEY-11606 B74-10177 04

WATER TREATMENT

Iodine generator for disinfecting
reclaimed water
MSC-14632 B74-10153 05

Polyelectrolytes with high charge
density
NPO-11918 B74-10159 04

WATER VEHICLES

Wireless telemetry system for floating
bodies
KSC-10855 B74-10028 06

WAVE PROPAGATION

Zeros of certain cross products of Bessel
functions of fractional order
LEWIS-12221 B74-10012 03

WAVEFORMS

Wide deviation phase modulator
LANGLEY-11607 B74-10178 02

WAVELENGTHS

Spectrometer
GSFC-11694 B74-10181 03

WEAR INHIBITORS

Improved geneva mechanism
LANGLEY-11443 B74-10030 06

WEATHER STATIONS

Radio-controlled, sound-operated switch
LANGLEY-11641 B74-10143 03

WEIGHT (MASS)

Inexpensive lightweight mirror
MSC-14615 B74-10155 05

WELDING

In-process oxidation protection in fluxless
brazing or diffusion bonding of aluminum
alloys

MSC-14435 B74-10096 04

WELDING MACHINES

Side wire feed for welding apparatus
NPO-13148 B74-10214 08

WHEELS

Nondestructive testing of railroad wheels
and rails by ultrasonics
M-FS-23086 B74-10238 06

WIND TUNNELS

High-directivity acoustic antenna
ARC-10789 B74-10050 02

WINDOWS (APERTURES)

Inspection of transparent surfaces using
photosensitive paper
MSC-19442 B74-10224 03

WING TIPS

Flight tests of vortex-attenuating
splines
LANGLEY-11645 B74-10187 03

WIRE

High strength, wire-reinforced
electroformed structures
LEWIS-12087 B74-10018 08

WIRELESS COMMUNICATIONS

Wireless telemetry system for floating
bodies
KSC-10855 B74-10028 06

WIRING

Side wire feed for welding apparatus
NPO-13148 B74-10214 08

High-voltage distributors
GSFC-11849 B74-10242 01

WRENCHES

Bolt installation tool for tightening large
nuts and bolts
NPO-13059 B74-10164 07

WROUGHT ALLOYS

New nickel-base wrought superalloy with
applications up to 1253 K (1800 F)

LEWIS-11828 B74-10003 04

Cobalt base superalloy has outstanding
properties up to 1478 K (2200 F)

LEWIS-12089 B74-10081 03

X**X RAY ASTRONOMY**

Compact source of soft X-rays
HQ-10732 B74-10232 03

X RAY INSPECTION

Method of measuring the thickness of
radioactive thin films
LEWIS-11971 B74-10065 03

X RAY SOURCES

Compact source of soft X-rays
HQ-10732 B74-10232 03

X RAYS

Improved channel multiplier for
radiation-and-particle detectors
NPO-12128 B74-10275 03

XENON LAMPS

Improved xenon lamp for solar
simulators: A concept
NPO-13128 B74-10195 03

Y**YTTRIUM-ALUMINUM GARNET**

Dually-mode-locked ND: YAG laser
GSFC-11746 B74-10038 03

PERSONAL AUTHOR INDEX

Personal Author Index

This index is arranged alphabetically by author. The Tech Brief title is listed followed by the originating Center number, e.g., ARC-10512. The Tech Brief number, e.g., B74-10045 is followed by a two-digit number, e.g., 06, which designates the subject category.

A

- ABSHIRE, J. B.**
Dynamic polarization compensating system for optical communications receiver
GSFC-11782 B74-10182 03
- ADMIRE, J. R.**
Dynamic transformation method
M-FS-22848 B74-10076 06
- AJIOKA, J. S.**
High-efficiency multifrequency feed
GSFC-11909 B74-10288 02
- ALBERS, J. A.**
Computer program for calculating laminar, transitional, and turbulent boundary layers for a compressible axisymmetric flow
LEWIS-12178 B74-10129 09
- ALEXANDER, H. R.**
Swashplate feedback control for tilt-rotor aircraft
ARC-10854 B74-10174 06
- ALGER, D. L.**
Long life neutron generator target using deuterium pass-through structure
LEWIS-11866 B74-10063 03
Method of measuring the thickness of radioactive thin films
LEWIS-11971 B74-10065 03
A high yield neutron target
LEWIS-12058 B74-10066 03
- ALLARIO, F.**
Wavelength-selective, sequential Q-switching laser cavity
LANGLEY-11045 B74-10134 03
- ALLEN, W. K.**
Traffic control system and method
GSFC-10087 B74-10024 02
- ANDERSON, A. J.**
Heat-transfer thermal switch
LANGLEY-11232 B74-10092 06
- Soft, thermally conductive material
LANGLEY-10850 B74-10132 04
- ANDERSON, J. E.**
Propellant acquisition device for use with a spinning toroidal tank
ARC-10840 B74-10059 06
- ANDERSON, M.**
Heart-rate pulse-shift detector
ARC-10729 B74-10196 01
- ANDERSON, M. S.**
Computer program for structural analysis of layered orthotropic ring-stiffened shells of revolution (SALORS): Linear stress analysis option
LANGLEY-11569 B74-10186 09
- ANDREWS, R. E.**
DC-to-AC inverter ratio failure detector
NPO-13160 B74-10282 01
- ANNIS, J. F.**
Programmed-pressure air supply for positive-pressure breathing system
ARC-10845 B74-10075 05
- ANTHONY, K. G.**
Self-regenerating desiccant system
M-FS-23057 B74-10266 07
- ARNETT, J. C.**
Side wire feed for welding apparatus
NPO-13148 B74-10214 08
- ARNOLD, C. B.**
Measurement of temperature profiles in hot gases and flames
LEWIS-12055 B74-10060 03
- ASHURST, A. N.**
Fabrication of complex structures or assemblies by hot isostatic pressure (HIP) welding
LEWIS-11490 B74-10124 04
- ATKINS, A. G.**
Controlled intermittent interfacial bond concept for composite materials
LANGLEY-11628 B74-10264 04
- AUER, S. O.**
Particle impact location detector
GSFC-11829 B74-10230 03
Micrometeoroid velocity-and-trajectory analyzer
GSFC-11889 B74-10286 01
Micrometeoroid composition analyzer
GSFC-11892 B74-10287 01
- AVERY, R. M.**
Closed-circuit-television welding-electrode guidance system
M-FS-23026 B74-10150 02

B

- BAKER, C. D.**
Compact telemetry package for remote monitoring of neutron responses in animals
NPO-11887 B74-10103 05
- BAKER, I.**
Light-weight spherical submergence vessel
ARC-10838 B74-10114 08
- BARON, A. K.**
Computer program for calculating water and steam properties
LEWIS-12206 B74-10123 09
- BARTHLOME, D. E.**
Therapeutic hand-exercising device with cycling pressure value
LANGLEY-11579 B74-10140 05
- BATTEN, C. E.**
Domestic wash water reclamation
LANGLEY-11606 B74-10177 04
- BAUCOM, R. M.**
Pressure application technique for high-temperature composite fabrication
LANGLEY-11601 B74-10141 08
- BEADLE, B. D., II**
Generalized curve fit and plotting (GECAP) program
M-FS-22728 B74-10044 09
- BEAVER, E. A.**
Digital multichannel photometer
HQ-10791 B74-10200 03
- BECK, F. B.**
Horn antenna with v-shaped corrugated surface
LANGLEY-11112 B74-10260 01
- BEITEL, G. A.**
Graphite ionization vacuum gauge
LANGLEY-11338 B74-10136 03
- BELEW, R. R.**
Emergency descent device
M-FS-23074 B74-10226 05
- BEMENT, L. J.**
Apparatus for monitoring linear explosive performance
LANGLEY-10800 B74-10201 04
- BENSON, D. K.**
Graphite ionization vacuum gauge
LANGLEY-11338 B74-10136 03
- BILLMEYER, E.**
Pocket gauge for checking insert clocking of multipin circular connectors
NPO-11924 B74-10160 01
- BILOW, N.**
Metallized polymeric foam material
ARC-10860 B74-10218 04
Moisture-resistant baffle material for fuel tanks
ARC-10861 B74-10219 04
- BIRNBAUM, B. A.**
Metallized polymeric foam material
ARC-10860 B74-10218 04
- BLACK, H. L.**
A new nickel-base wrought superalloy for applications up to 1033 K (1400 F)
LEWIS-11827 B74-10002 04

- New nickel-base wrought superalloy with applications up to 1253 K (1800 F)
LEWIS-11828 B74-10003 04
- BLOAM, E. T.**
Fail-safe fire detection system
LEWIS-12238 B74-10078 02
- BOETTGER, H. G.**
Negative ion spectrometry for detecting nitrated explosives
NPO-13082 B74-10276 02
- BOSHERS, W. A.**
Lead-oxygen closed-loop battery system
M-FS-23059 B74-10267 06
- BRADSPIES, J. L.**
Carbon monoxide detector
M-FS-23090 B74-10268 04
- BRECKENRIDGE, R. A.**
Magnetometer with miniature transducer and automatic transducer scanning apparatus
LANGLEY-11617 B74-10142 02
- BRIGHT, C.**
Control of elasticity in cast elastomeric shock/vibration isolators
KSC-10850 B74-10039 07
- BRITSCH, W. R.**
Data summary and computer program for axial-flow pump rotor performance
LEWIS-11920 B74-10127 09
- BRITZ, W. J.**
Lead-oxygen closed-loop battery system
M-FS-23059 B74-10267 06
- BROOKS, A. D.**
Low-temperature electrostatic silicon-to-silicon seals using sputtered borosilicate glass
LANGLEY-11589 B74-10263 08
- BROSKIE, H. W.**
Viewgraph preparation made easier
LANGLEY-11612 B74-10094 03
- BROWN, R. M.**
Three-point bridge calibration with one resistor
ARC-10762 B74-10047 01
- BROWNE, J. C.**
FORTRAN automatic code evaluation system (FACES)
M-FS-22910 B74-10190 09
- BRUMMER, S. B.**
Carbon monoxide detector
M-FS-23090 B74-10268 04
- BRYANT, T. D.**
Radio-controlled, sound-operated switch
LANGLEY-11641 B74-10143 03
- BRYANT, W. A.**
Fabrication of complex structures or assemblies by hot isostatic pressure (HIP) welding
LEWIS-11490 B74-10124 04
- BUCHHELE, D. R.**
Rotating turbine blade pyrometer
LEWIS-12218 B74-10068 01
- BUNA, T.**
Analysis of orbital heat transfer
ARC-10842 B74-10115 02
Analysis of orbital heat transfer
ARC-10844 B74-10116 03
- BURCH, J. L.**
Self-leveling load table
M-FS-22039 B74-10144 06
- BURCHER, E. E.**
Viewgraph preparation made easier
LANGLEY-11612 B74-10094 03
- BUSCH, R.**
Fabrication of thick structures by sputtering
LEWIS-12331 B74-10126 08
- BUSHNELL, D.**
Computer program for stress, stability, and vibration of complex branched shells of revolution: BOSOR 4
LANGLEY-11209 B74-10205 09
- BUTMAN, S.**
Interplex modulation and a suppressed-carrier tracking loop for coherent communications systems
NPO-11572 B74-10209 01
- C**
- CAMPBELL, R. D.**
Error-correcting codes for high-speed digital computers
M-FS-22887 B74-10147 02
- CAMPEN, C. F., JR.**
Automated drug identification system
NPO-13063 B74-10213 05
Liquid sample processor
NPO-13136 B74-10278 05
- CARL, C.**
Digital second-order phase-locked loop
NPO-11905 B74-10274 01
- CARLIN, A. H.**
Solar array deployment from a spinning spacecraft
ARC-10787 B74-10048 06
- CARLSON, L. W.**
Accurate thickness measurement of easily compressed materials
ARC-10551 B74-10111 04
- CARON, P. R.**
Phased-array antenna phase control circuit using frequency multiplication
ERC-10285 B74-10251 01
Logarithmic-function generator
ERC-10267 B74-10285 02
- CARUSO, V. P.**
Mechanical rod peening
M-FS-23047 B74-10237 07
- CHAMIS, C. C.**
Criteria for selecting resin matrices for improved composite strength
LEWIS-12057 B74-10005 04
Advanced fiber-composite hybrids--A new structural material
LEWIS-12118 B74-10247 04
- CHANDLER, H. H.**
Glass fiber addition strengthens low-density ablative compositions
LANGLEY-11288 B74-10027 04
- CHANDRASEKARAN, S.**
Polymer compositions suitable for use in enriched oxygen atmospheres
MSC-14618 B74-10154 04
- CHEN, M. M.**
Computer program for structural analysis of layered orthotropic ring-stiffened shells of revolution (SALORS): Linear stress analysis option
LANGLEY-11569 B74-10186 09
- CHENG, D. Y.**
Reversed cowl-flap thrust augmentor
ARC-10754 B74-10046 06
Probe for measuring turbulent real-time shear-stress waves
ARC-10755 B74-10072 03
- CHILDRESS, J. D.**
New tooth enamel from brushite crystals
ERC-10338 B74-10199 05
- CHISUM, W. J.**
Process to restore obliterated serial numbers on metal surfaces
LEWIS-12085 B74-10020 07
- CHRISTIAN, J. D.**
Semipermanent sealing of leaks in high vacuum systems
ARC-10881 B74-10175 04
- CLEMENTS, P. A.**
Stable group delay cable
NPO-13138 B74-10295 01
- CLOTFELTER, W. N.**
Nondestructive testing of railroad wheels and rails by ultrasonics
M-FS-23086 B74-10238 06
- COLLINS, J. D.**
Model optimization using statistical estimation
M-FS-22873 B74-10189 09
- COLOMBO, G. V.**
Silver oxide sorbent for carbon dioxide
ARC-10797 B74-10053 04
- COOMBS, D. S.**
Precision glasscutter
LANGLEY-11604 B74-10031 07
- CORNSWEET, T. N.**
Fast signal averager
ARC-10090 B74-10109 02
- COUCH, R. H.**
Wide deviation phase modulator
LANGLEY-11607 B74-10178 02
- CRIBB, H. E.**
Wireless telemetry system for floating bodies
KSC-10855 B74-10028 06
- CROW, R. B.**
Frequency discriminator/phase detector
NPO-11515 B74-10098 02
Third-order phase-locked loop receiver
NPO-11941 B74-10104 02
- CURRAN, R. T.**
Space ultrareliable modular computer (SUMC) instruction simulator
M-FS-22697 B74-10145 09
- CURTIS, H. B.**
A low cost "Air Mass 2" solar simulator
LEWIS-12266 B74-10086 02
- D**
- DANCHENKO, V.**
Radiation hardening of metal-oxide semiconductor (MOS) devices by boron
GSFC-11425 B74-10026 01
- DASH, S.**
Numerical program for analysis of three-dimensional supersonic exhaust flow fields (CHAR 3D)
LANGLEY-11596 B74-10236 09
- DAVIS, T.**
FORTRAN automatic code evaluation system (FACES)
M-FS-22910 B74-10190 09
- DAVIS, W. F.**
Rapid method for determining nitrogen in tantalum and niobium alloys
LEWIS-12237 B74-10085 04
- DEBENHAM, C. H.**
Improved geneva mechanism
LANGLEY-11443 B74-10030 06

- DEBNAM, W. J., JR.**
Magnetometer with miniature transducer and automatic transducer scanning apparatus
LANGLEY-11617 B74-10142 02
- DECANINI, J. H.**
Spacecraft attitude determination by fanscan technique
ARC-10827 B74-10198 02
- DERR, L. J.**
Electrostatically controlled heat shutter
NPO-11942 B74-10161 03
Ultrasonic scanner for footprint identification
NPO-13055 B74-10212 03
- DESKIN, R. D.**
Modular support blocks for fluid lines
MSC-19335 B74-10023 07
- DIETRICH, F. J.**
Amplitude-steered, pseudophased antenna array
GSFC-11446 B74-10255 01
- DILLENIUS, M. F. E.**
Computation of aerodynamic interference between lifting surfaces and lift- and cruise-fans
ARC-10833 B74-10113 09
Calculation of aerodynamic characteristics of STOL aircraft
ARC-10882 B74-10221 09
- DIMEFF, J.**
Modulated hydrogen-ion flame detector: A concept
ARC-10322 B74-10071 03
Integrated structure vacuum tube: A Concept
ARC-10445 B74-10110 01
Improved nondispersive infrared analyzer
ARC-10802 B74-10243 03
- DIMINO, J. M.**
Modular support blocks for fluid lines
MSC-19335 B74-10023 07
- DOLERHIE, B. D., JR.**
Generalized curve fit and plotting (GECAP) program
M-FS-22728 B74-10044 09
- DONOVAN, R. P.**
Low-temperature electrostatic silicon-to-silicon seals using sputtered borosilicate glass
LANGLEY-11589 B74-10263 08
- DORSCH, B.**
Telecommunications systems design techniques handbook
NPO-13245 B74-10284 02
- DOSHI, N. H.**
Valve degradation detector
ARC-10850 B74-10117 03
- DUSCHA, R. A.**
High strength, wire-reinforced electroformed structures
LEWIS-12087 B74-10018 08
- DUSTIN, M. O.**
Mechanical coupling for high cyclic loading
LEWIS-11690 B74-10001 06
- EBERSOLE, T. J.**
DC-to-AC inverter ratio failure detector
NPO-13160 B74-10282 01
- EDELSON, R. E.**
Telecommunications systems design techniques handbook
NPO-13245 B74-10284 02
- EL-SUM, H. M. A.**
High-directivity acoustic antenna
ARC-10789 B74-10050 02
- ELAM, R. M., JR.**
Cushion module for stowing electronic equipment
ARC-10779 B74-10073 04
- ELKINS, W.**
Liquid-cooled liner for helmets
ARC-10534 B74-10249 05
- ERICKSON, A. C.**
Two-phase, passive separator-and-filter assembly
LANGLEY-10976 B74-10133 04
- ESKER, D. W.**
Vented vectoring-nozzle for STOL and V/STOL aircraft
ARC-10839 B74-10058 06
- EVANS, D. B.**
Radioisotope heater
ARC-10791 B74-10051 03
- EXTON, R. J.**
Visualization of smoke stack plume
LANGLEY-11675 B74-10208 04
- F**
- FAIN, L. T.**
Wireless telemetry system for floating bodies
KSC-10855 B74-10028 06
- FALES, C. L.**
Magnetometer with miniature transducer and automatic transducer scanning apparatus
LANGLEY-11617 B74-10142 02
- FEATHERSTON, A. B.**
In-process oxidation protection in fluxless brazing or diffusion bonding of aluminum alloys
MSC-14435 B74-10096 04
- FEHRENKAMP, L. G.**
Inexpensive lightweight mirror
MSC-14615 B74-10155 05
Plastic covering on airfoil structure provides smooth uninterrupted surface
MSC-12631 B74-10270 08
- FERGUSON, D. R.**
Computer program for steamtube curvature analysis: Analytical method
LANGLEY-11535 B74-10206 09
- FERRI, A.**
Numerical program for analysis of three-dimensional supersonic exhaust flow fields (CHAR 3D)
LANGLEY-11596 B74-10236 09
- FITZMAURICE, M. W.**
Dynamic polarization compensating system for optical communications receiver
GSFC-11782 B74-10182 03
Optical communication channel simulator system
GSFC-11877 B74-10258 01
- FOGAL, G. L.**
Methods for improved resolution of flow electrophoresis cells
M-FS-22223 B74-10032 04
- FRECHE, J. C.**
Cobalt base superalloy has outstanding properties up to 1478 K (2200 F)
LEWIS-12089 B74-10081 03
High strength nickel base alloy, WAZ-16, for applications up to 2200 F
LEWIS-12270 B74-10082 04
- FRESKA, S. A.**
Holographic evaluation of fatigue cracks by a compressive stress (HYSTERESIS) technique
MSC-14555 B74-10156 06
- FRIEDEL, M. V.**
Heat-transfer thermal switch
LANGLEY-11232 B74-10092 06
- FRYKLUND, D. H.**
Piezoelectric relay
GSFC-11627 B74-10089 01
- FULLERTON, E. A.**
Directory of aerospace safety specialized information sources
LEWIS-12223 B74-10019 03
- G**
- GABBARD, N. M.**
Automatic marker for photographic film
MSC-14705 B74-10152 03
- GALVAS, M. R.**
Computer program for predicting off-design performance of centrifugal compressors
LEWIS-12186 B74-10067 09
- GAMARI, F. J.**
Improved fabrication of electrolytic capacitors
M-FS-23133 B74-10294 01
- GANDY, A. R.**
Environmental control and waste management system design concept
LANGLEY-11588 B74-10235 06
- GARDNER, J. B.**
Solar array deployment from a spinning spacecraft
ARC-10787 B74-10048 06
- GARNER, H. D.**
Magnetic-heading reference device
LANGLEY-11387 B74-10176 02
Pulse-width-modulated servo valve for autopilot system
LANGLEY-11643 B74-10179 06
- GARRISON, G. W.**
Telecommunications systems design techniques handbook
NPO-13245 B74-10284 02
- GATEWOOD, J. R.**
Thin-film temperature sensor
NPO-11775 B74-10100 01
- GAYMAN, W. H.**
Fluid dynamics test method
NPO-11895 B74-10211 03
- GILBREATH, W. P.**
Semipermanent sealing of leaks in high vacuum systems
ARC-10881 B74-10175 04
- GILDER, J. R.**
Telecommunications systems design techniques handbook
NPO-13245 B74-10284 02
- GILLEY, G. C.**
Automated maintenance for complex hybrid systems
NPO-13143 B74-10279 09

- High-speed fault-tolerant telemetry/
computer interface
NPO-13139 B74-10296 02
- GILMAN, M. M.**
Flange design for large-scale modular
assembly jigs
MSC-19372 B74-10273 06
- GOLDSTEIN, M.**
Fabrication of complex structures or
assemblies by hot isostatic pressure (HIP)
welding
LEWIS-11490 B74-10124 04
- GOODER, S. T.**
Self-protecting solid state isolated
switch
LEWIS-12268 B74-10069 01
- GOORVITCH, D.**
Combined effects of a converging beam
of light and mirror misalignment in
michelson interferometry
ARC-10889 B74-10246 03
- GORENSTEIN, P.**
Compact source of soft X-rays
HQ-10732 B74-10232 03
- GOUGH, F. K., JR.**
Viewgraph preparation made easier
LANGLEY-11612 B74-10094 03
- GRAAB, J. W.**
Rapid method for determining nitrogen
in tantalum and niobium alloys
LEWIS-12237 B74-10085 04
- GRAHAM, U. O.**
Inspection of transparent surfaces using
photosensitive paper
MSC-19442 B74-10224 03
- GREENLEAF, J. E.**
Thermistor holder for skin-temperature
measurements
ARC-10855 B74-10119 05
- GREGG, J. L.**
Computer program for calculating
laminar, transitional, and turbulent boundary
layers for a compressible axisymmetric
flow
LEWIS-12178 B74-10129 09
- GROOVER, J. L.**
Marshall information retrieval and display
system (MIRADS)
M-FS-22536 B74-10043 09
- GUIDICE, P. D.**
Numerical program for analysis of
three-dimensional supersonic exhaust flow
fields (CHAR 3D)
LANGLEY-11596 B74-10236 09
- GUPTA, K. K.**
Eigenfunction solution of damped
structural systems: DAMP
NPO-13480 B74-10169 09
- Eigenvalue algorithm based on a
combined sturm sequence and inverse
iteration technique (EASI)
NPO-13368 B74-10215 09
- GUSSOW, S.**
Computerized logic design of digital
circuits
M-FS-22401 B74-10225 09
- H**
- HAGLER, R., JR.**
Full-flow fluid filter
NPO-13118 B74-10277 02
- HALL, J. B., JR.**
Domestic wash water reclamation
LANGLEY-11606 B74-10177 04
- HALLER, A.**
FORTRAN automatic code evaluation
system (FACES)
M-FS-22910 B74-10190 09
- HALSOR, J. L.**
A method for polycrystalline silicon
delineation applicable to a double-diffused
MOS transistor
LANGLEY-11536 B74-10234 01
- HAND, P. J.**
Temperature compensation of digital
inertial sensors
NPO-13044 B74-10106 02
- HANNA, C. E.**
Telecommunications systems design
techniques handbook
NPO-13245 B74-10284 02
- HANSEN, G. R., JR.**
Location of vehicles using AM station
broadcasting signals
NPO-13217 B74-10300 02
- HANSEN, I. G.**
Electronic high pass filter
LEWIS-11600 B74-10083 02
- HANSON, M. P.**
Criteria for selecting resin matrices for
improved composite strength
LEWIS-12057 B74-10005 04
- HARDESTY, C. A.**
Low-temperature electrostatic
silicon-to-silicon seals using sputtered
borosilicate glass
LANGLEY-11589 B74-10263 08
- HARF, F. H.**
A new nickel-base wrought superalloy
for applications up to 1033 K (1400 F)
LEWIS-11827 B74-10002 04
- New nickel-base wrought superalloy with
applications up to 1253 K (1800 F)
LEWIS-11828 B74-10003 04
- Cobalt base superalloy has outstanding
properties up to 1478 K (2200 F)
LEWIS-12089 B74-10081 03
- HARLAMERT, P., JR.**
A low cost "Air Mass 2" solar
simulator
LEWIS-12266 B74-10086 02
- HARLOW, R. A.**
Cobalt base superalloy has outstanding
properties up to 1478 K (2200 F)
LEWIS-12089 B74-10081 03
- HARRIS, B.**
Compact source of soft X-rays
HQ-10732 B74-10232 03
- HARRIS, L. P.**
Self-healing fuse
LEWIS-11964 B74-10004 02
- HARRISON, D. R.**
Three-point bridge calibration with one
resistor
ARC-10762 B74-10047 01
- HART, G. C.**
Model optimization using statistical
estimation
M-FS-22873 B74-10189 09
- HARTUNG, W. H.**
Automated monitoring of recovered
water quality
LANGLEY-11203 B74-10029 05
- HASSELMAN, T. K.**
Model optimization using statistical
estimation
M-FS-22873 B74-10189 09
- HAYES, S. R.**
Graphics shadowing analysis
M-FS-21406 B74-10040 09
- HAYS, L. G.**
Shutoff and throttling valve
NPO-11951 B74-10105 07
- HEARD, W. L., JR.**
Computer program for structural analysis
of layered orthotropic ring-stiffened shells
of revolution (SALORS): Linear stress
analysis option
LANGLEY-11569 B74-10186 09
- HEARN, C. P.**
Wide deviation phase modulator
LANGLEY-11607 B74-10178 02
- HECK, P. H.**
Computer program for steamtube
curvature analysis: Analytical method
LANGLEY-11535 B74-10206 09
- HEFFERNAM, J. T.**
Plastic covering on airfoil structure
provides smooth uninterrupted surface
MSC-12631 B74-10270 08
- HEIER, W. C.**
Laminating cored, stressed-face, sand-
wich structures
XLA-11028 B74-10233 06
- HEIN, L. A.**
Mechanical solar motor: A concept
M-FS-23062 B74-10292 07
- HENDRICKS, R. C.**
Computer program for calculating water
and steam properties
LEWIS-12206 B74-10123 09
- HENNEMAN, M.**
FORTRAN automatic code evaluation
system (FACES)
M-FS-22910 B74-10190 09
- HERNDON, E. P.**
Self-regenerating desiccant system
M-FS-23057 B74-10266 07
- HOFFMAN, A. C.**
Self-protecting solid state isolated
switch
LEWIS-12268 B74-10069 01
- HOFFMAN, I. S.**
Miniature biaxial strain transducer
LANGLEY-11648 B74-10180 01
- HOLLECK, G. L.**
Carbon monoxide detector
M-FS-23090 B74-10268 04
- HOLLENBAUGH, R. C.**
Traffic control system and method
GSFC-10087 B74-10024 02
- HOLLIDAY, M. L.**
Alignment fixture for precision cutting
of printed-wiring boards
LANGLEY-11658 B74-10290 01
- HOLMES, J. K.**
Digital second-order phase-locked loop
NPO-11905 B74-10274 01
- HORNFECK, W. A.**
Space ultrareliable modular computer
(SUMC) instruction simulator
M-FS-22697 B74-10145 09
- HOWARD, J. C.**
Suppression of bending motion in elastic
bodies
XAC-05632 B74-10070 06
- G-load indicator and warning device for
aircraft
ARC-10806 B74-10171 02
- HOWARTH, J. T.**
Flame resistant elastic elastomeric fiber
MSC-14331 B74-10157 04
- HOWE, J. T.**
Volume-reflecting dielectric heat shield
ARC-10803 B74-10074 04

- HUDOCK, R. J.**
Reference apparatus for medical
ultrasonic transducer
ARC-10753 B74-10197 01
- HUTCHBY, J. A.**
Efficiency increased in new solar cell:
A Concept
LANGLEY-11174 B74-10090 01

I

- INGHAM, J. D.**
New polymer systems: Chain extension
by dianhydrides
NPO-13046 B74-10077 04
- ISHIMARU, A.**
Method for remotely sensing turbulence
of planetary atmospheres
NPO-13154 B74-10168 03

J

- JAHNSEN, V. J.**
Liquid sample processor
NPO-13136 B74-10278 05
- JANSSEN, W. A.**
High voltage solid-state relay
LEWIS-12096 B74-10006 01
- JEANE, H. L.**
Advanced-priority interrupt module
NPO-13067 B74-10165 02
- JENKINS, R. V.**
Flat device for heat concentration or
dispersion
LANGLEY-11699 B74-10291 03
- JOHNSON, C. C.**
Amplitude-steered, pseudophased an-
tenna array
GSFC-11446 B74-10255 01
- JONES, G. M.**
Extendible probe for atmosphere
sampling
ARC-10829 B74-10054 03
- JONES, N. D.**
Self-healing fuse
LEWIS-11964 B74-10004 02
- JONES, S. C.**
Marshall information retrieval and display
system (MIRADS)
M-FS-22536 B74-10043 09
- JONES, W. J.**
Extendible probe for atmosphere
sampling
ARC-10829 B74-10054 03
- Toroidal equipment packaging
ARC-10828 B74-10055 03

K

- KALFAYAN, S. H.**
Strain gauge sensitivity improved by
using a composite beam
NPO-13170 B74-10297 07
- KATSANIS, T.**
Computer program for calculating
velocities and streamlines on mid-channel
flow surface of axial or mixed-flow
turbomachine
LEWIS-12129 B74-10130 09
- KATZBERG, S. J.**
Viewgraph preparation made easier
LANGLEY-11612 B74-10094 03

- KAUFMANN, J. J.**
Lead-oxygen closed-loop battery
system
M-FS-23059 B74-10267 06
- KAZAROFF, J. M.**
High strength, wire-reinforced electro-
formed structures
LEWIS-12087 B74-10018 08
- Fabrication of thick structures by
sputtering
LEWIS-12331 B74-10126 08
- KEITH, J. S.**
Computer program for steamtube
curvature analysis: Analytical method
LANGLEY-11535 B74-10206 09
- KENNEDY, B.**
Model optimization using statistical
estimation
M-FS-22873 B74-10189 09
- KENT, W. B.**
A new nickel-base wrought superalloy
for applications up to 1033 K (1400 F)
LEWIS-11827 B74-10002 04
- New nickel-base wrought superalloy with
applications up to 1253 K (1800 F)
LEWIS-11828 B74-10003 04
- KERWIN, W. J.**
Integrated structure vacuum tube: A
Concept
ARC-10445 B74-10110 01
- KIMMEL, B. G.**
Thermally-stable, syntactic pyrrone
foams
LANGLEY-11325 B74-10135 06
- KING, R. B.**
Improved high volume air sampler
LEWIS-11644 B74-10080 05
- KING, V. P.**
Battery activation system
ARC-10832 B74-10056 03
- KING, W. L.**
Marshall information retrieval and display
system (MIRADS)
M-FS-22536 B74-10043 09
- KINSINGER, R. E.**
Self-healing fuse
LEWIS-11964 B74-10004 02
- KINZLER, J. A.**
Plastic covering on airfoil structure
provides smooth uninterrupted surface
MSC-12631 B74-10270 08
- KLEIR, R.**
FORTRAN automatic code evaluation
system (FACES)
M-FS-22910 B74-10190 09
- KLINE, A. J., JR.**
Improved capacitance multiplier circuit
NPO-11948 B74-10162 02
- KLISCH, J. A.**
Combustion products generating and
metering device
GSFC-11095 B74-10036 04
- KOCH, E. F.**
Remotely operated gas-pressure
regulator and shuttle valve
NPO-13201 B74-10298 07
- KOLBLY, R. B.**
Pocket-size microwave radiation hazard
detector
NPO-11461 B74-10097 02
- KOLOBOFF, G. J.**
Amplitude-steered, pseudophased an-
tenna array
GSFC-11446 B74-10255 01

- KOTANI, P. M.**
Telecommunications systems design
techniques handbook
NPO-13245 B74-10284 02
- KRAUSHAAR, W. L.**
Coaxial anode improves sensitivity of gas
radiation counters
GSFC-11492 B74-10229 03
- KUHAR, E. J., JR.**
Dynamic transformation method
M-FS-22848 B74-10076 06
- KUNZ, L. W.**
Combined effects of a converging beam
of light and mirror misalignment in
michelson interferometry
ARC-10889 B74-10246 03
- KURIGER, W. L.**
Short-range laser obstacle detector
NPO-11856 B74-10101 03
- KURVIN, C. W.**
Time-control system for communication
between data-collection and orbiting
GSFC-11182 B74-10088 02

L

- LAHTI, D. J.**
Computer program for steamtube
curvature analysis: Analytical method
LANGLEY-11535 B74-10206 09
- LARK, R. F.**
Advanced fiber-composite hybrids--A
new structural material
LEWIS-12118 B74-10247 04
- LASSEN, H. A.**
Solar array deployment from a spinning
spacecraft
ARC-10787 B74-10048 06
- Spacecraft attitude determination by
fanscan technique
ARC-10827 B74-10198 02
- LASSETER, G. L.**
FORTRAN automatic code evaluation
system (FACES)
M-FS-22910 B74-10190 09
- LAUGHLIN, C. R.**
Traffic control system and method
GSFC-10087 B74-10024 02
- LEE, R. D.**
Bio-isolated DC operational amplifier
ARC-10596 B74-10112 01
- Reference apparatus for medical
ultrasonic transducer
ARC-10753 B74-10197 01
- LEE, W. S.**
Plastic covering on airfoil structure
provides smooth uninterrupted surface
MSC-12631 B74-10270 08
- LEEPER, W. A.**
High-efficiency multifrequency feed
GSFC-11909 B74-10288 02
- LEES, W. L.**
Self-protected electrodes limit field-
emission current
ERC-10015 B74-10253 01
- LEGER, L. J.**
Detection of cracks in surface
insulation
MSC-14187 B74-10095 04
- LESCO, D. J.**
Rotating turbine blade pyrometer
LEWIS-12218 B74-10068 01

- LESNIEWSKI, R. J.**
Data processor with conditionally
supplied clock signals
GSFC-10975 874-10021 02
- LESSMANN, G. G.**
Fabrication of complex structures or
assemblies by hot isostatic pressure (HIP)
welding
LEWIS-11490 874-10124 04
- LEVITT, B. K.**
Telecommunications systems design
techniques handbook
NPO-13245 874-10284 02
- LIN, H. C.**
A method for polycrystalline silicon
delineation applicable to a double-diffused
MOS transistor
LANGLEY-11536 874-10234 01
- LINDQUIST, G. H.**
Measurement of temperature profiles in
hot gases and flames
LEWIS-12055 874-10060 03
- LOLLAR, R. B.**
Remote sunfall monitor: A concept
M-FS-22943 874-10149 03
- LOVELL, R. R.**
Very high voltage latching relay
LEWIS-12265 874-10079 01
- LOWELL, C. E.**
Addition of silicon improves oxidation
resistance of nickel based superalloys
LEWIS-12138 874-10007 04
- LUCHT, R. A.**
Wavelength-selective, sequential
Q-switching laser cavity
LANGLEY-11045 874-10134 03
- LUDWIG, A.**
Low-loss, circularly-polarized dichroic
plate
NPO-13171 874-10283 01
- LUDWIG, L. P.**
Improved circumferential shaft seal
LEWIS-11873 874-10062 07

M

- MAGEE, J. P.**
Swashplate feedback control for tilt-rotor
aircraft
ARC-10854 874-10174 06
- MAILLOUX, R. J.**
Improved circularly polarized antenna
ERC-10214 874-10250 02
- Phased-array antenna phase control
circuit using frequency multiplication
ERC-10285 874-10251 01
- MAKINEN, M. D.**
Method of measuring the thickness of
radioactive thin films
LEWIS-11971 874-10065 03
- MANDEL, G.**
Directory of aerospace safety specialized
information sources
LEWIS-12223 874-10019 03
- MANDT, R. R.**
Remote sunfall monitor: A concept
M-FS-22943 874-10149 03
- MARCHESE, V. P.**
Ignition of sounding rocket motors with
hand-pumped air
LANGLEY-11152 874-10202 03
- MARCUS, B. D.**
Throttleable heat pipe
ARC-10848 874-10173 03

- Heat pipe with hot gas reservoir
ARC-10847 874-10216 03
- MARSH, H. E., JR.**
Polymers used to absorb fats and oils:
A concept
NPO-11609 874-10210 05
- MARSHALL, D. L.**
Enzymatic regeneration of adenosine
triphosphate cofactor
ARC-10837 874-10057 04
- MARSTON, T. U.**
Controlled intermittent interfacial bond
concept for composite materials
LANGLEY-11628 874-10264 04
- MARTEL, R. J.**
Amplitude-steered, pseudophased an-
tenna array
GSFC-11446 874-10255 01
- MARTIN, J. H.**
Improved circuit-board interconnectors
MSC-12661 874-10239 01
- MARZEK, R. A.**
Straight-line IC removal tool
NPO-13157 874-10281 01
- MASERJIAN, J.**
Thin-film temperature sensor
NPO-11775 874-10100 01
- MASSUCCO, A. A.**
Flame resistant elastic elastomeric fiber
MSC-14331 874-10157 04
- MCCANDLESS, L. C.**
High strength, wire-reinforced electro-
formed structures
LEWIS-12087 874-10018 08
- MCCHESNEY, J. F., JR.**
High-voltage distributors
GSFC-11849 874-10242 01
- MCCLANAHAN, E. D.**
Fabrication of thick structures by
sputtering
LEWIS-12331 874-10126 08
- MCCREIGHT, L. R.**
Methods for improved resolution of flow
electrophoresis cells
M-FS-22223 874-10032 04
- MCDONALD, G. E.**
Commercially available black chrome is
an effective solar collector coating
LEWIS-12159 874-10121 04
- MCDUGAL, A. R.**
Bolt installation tool for tightening large
nuts and bolts
NPO-13059 874-10164 07
- MCILWAIN, C. E.**
Digital multichannel photometer
HQ-10791 874-10200 03
- MCKENNA, P. J.**
Directory of aerospace safety specialized
information sources
LEWIS-12223 874-10019 03
- MCNALLY, W. D.**
Computer program for calculating
velocities and streamlines on mid-channel
flow surface of axial or mixed-flow
turbomachine
LEWIS-12129 874-10130 09
- MCNAMARA, T. G.**
High-strength alloy with resistance to
hydrogen-environment embrittlement
M-FS-19234 874-10265 04
- MEHMED, O.**
Mechanical coupling for high cyclic
loading
LEWIS-11690 874-10001 06

- MENDENHALL, M. R.**
Computation of aerodynamic interference
between lifting surfaces and lift- and
cruise-fans
ARC-10833 874-10113 09
- Calculation of aerodynamic
characteristics of STOL aircraft
ARC-10882 874-10221 09
- MENICHELLI, V. J.**
Laser system to detonate explosive
devices
NPO-11743 874-10194 03
- MENTZER, C. A.**
Horn antenna with v-shaped corrugated
surface
LANGLEY-11112 874-10260 01
- MENZEL, D. H.**
Spectrometer
GSFC-11694 874-10181 03
- MERKLE, C. L.**
Computer program for steamtube
curvature analysis: Analytical method
LANGLEY-11535 874-10206 09
- MERKLE, E. J.**
Rapid method for determining nitrogen
in tantalum and niobium alloys
LEWIS-12237 874-10085 04
- MILLER, C. G.**
Improved dispensing targets for ion beam
particle generators
NPO-13112 874-10108 03
- MILLER, M. J.**
Data summary and computer program
for axial-flow pump rotor performance
LEWIS-11920 874-10127 09
- MILLS, S. M.**
Automated single-slide staining system
LANGLEY-11649 874-10188 05
- MINER, R. V., JR.**
New nickel-base wrought superalloy with
applications up to 1253 K (1800 F)
LEWIS-11828 874-10003 04
- Addition of silicon improves oxidation
resistance of nickel based superalloys
LEWIS-12138 874-10007 04
- MINTER, E. J.**
Mechanical rod peening
M-FS-23047 874-10237 07
- MINTON, F. R.**
Inspection of transparent surfaces using
photosensitive paper
MSC-19442 874-10224 03
- MISSELHORN, J. E.**
Automated monitoring of recovered
water quality
LANGLEY-11203 874-10029 05
- MITCHELL, G. D.**
Extendible probe for atmosphere
sampling
ARC-10829 874-10054 03
- MONTGOMERY, L. D.**
Finger recording electrode system for
electrical impedance plethysmograph
ARC-10816 874-10172 05
- MOODY, D. L., JR.**
Finger recording electrode system for
electrical impedance plethysmograph
ARC-10816 874-10172 05
- MOODY, J. W.**
Depositing spacing layers on magnetic
film with liquid phase epitaxy
LANGLEY-11528 874-10262 01
- MORESI, J. L.**
Improved fabrication of electrolytic
capacitors
M-FS-23133 874-10294 01

- MORRIS, A. L.**
Brake for rollable platform
ARC-10512 874-10045 06
- MORRIS, J. F.**
Binary alloys for refractory-metal
brazing
LEWIS-12184 874-10125 08
- MORRIS, J. J.**
Swashplate feedback control for tilt-rotor
aircraft
ARC-10854 874-10174 06
- MOSS, R. W.**
Fabrication of thick structures by
sputtering
LEWIS-12331 874-10126 08
- MUNOZ, R. M.**
Continuous Fourier transform system
ARC-10466 874-10170 02
- MURPHY, A. J.**
Laser-actuated mechanical device
NPO-13105 874-10166 03
- MYERS, W. N.**
Mechanical solar motor: A concept
M-FS-23062 874-10292 07

N

- NACHTSHEIM, P. R.**
Volume-reflecting dielectric heat shield
ARC-10803 874-10074 04
- NAKICH, R. B.**
Laser-scanning techniques for rapid
ballistics identification
NPO-11861 874-10102 03
- NELSEN, L. L.**
Carbon monoxide detector
M-FS-23090 874-10268 04
- NELSON, B. A.**
Micro-organism distribution sampling for
bioassays
LANGLEY-10789 874-10289 05
- NELSON, H. G.**
Evaluation of test procedures for
hydrogen environment embrittlement
ARC-10919 874-10222 04
- NORMAN, R. M.**
Bolt installation tool for tightening large
nuts and bolts
NPO-13059 874-10164 07
- NOSSEN, E. J.**
Reduction of quantization error in
measurement of frequency
MSC-14649 874-10191 02

O

- OELE, J. S.**
Volume measuring system
MSC-13972 874-10271 03
- OGLESBY, R.**
Computerized logic design of digital
circuits
M-FS-22401 874-10225 09
- OKEAN, H. C.**
High q band-pass resonators utilizing
composite band-stop resonator pairs
GSFC-10990 874-10035 02
- OKELLY, K. P.**
In-process oxidation protection in fluxless
brazing or diffusion bonding of aluminum
alloys
MSC-14435 874-10096 04

- OKIISHI, T. H.**
Data summary and computer program
for axial-flow pump rotor performance
LEWIS-11920 874-10127 09
- ORMISTON, T. J.**
Process for fabrication of stabilized
aluminum phosphate fibers
LANGLEY-11526 874-10185 08
- OSMUNDSON, J.**
Dually-mode-locked ND: YAG laser
GSFC-11746 874-10038 03
- OWEN, J. W.**
Generalized curve fit and plotting
(GECAP) program
M-FS-22728 874-10044 09
- OWENS, L.**
Control of elasticity in cast elastomeric
shock/vibration isolators
KSC-10850 874-10039 07
- OWENS, L. J.**
Artificial limb connection
KSC-10833 874-10183 05

P

- PACK, H., JR.**
Model optimization using statistical
estimation
M-FS-22873 874-10189 09
- PAINTER, J. H.**
Anti-multipath digital signal detector
LANGLEY-11379 874-10137 02
- PARKER, B.**
Process to restore obliterated serial
numbers on metal surfaces
LEWIS-12085 874-10020 07
- PARKER, R. J.**
Lightweight, high speed bearing balls:
A concept
LEWIS-11087 874-10013 06
- PATE, H. B., JR.**
Viewgraph preparation made easier
LANGLEY-11612 874-10094 03
- PATTERSON, J. C., JR.**
Flight tests of vortex-attenuating
splines
LANGLEY-11645 874-10187 03
- PAZDERA, J. S.**
Antiskid braking system
M-FS-22807 874-10146 06
- PEARSON, D. J.**
System for measuring transients in fluid
flow
ARC-10852 874-10217 03
- PELLER, I. C.**
Computer program for calculating water
and steam properties
LEWIS-12206 874-10123 09
- PERRY, W. E.**
Field-sequential stereo television
MSC-12616 874-10223 03
- PETERS, L., JR.**
Horn antenna with v-shaped corrugated
surface
LANGLEY-11112 874-10260 01
- PETERSON, D. L.**
Volume-reflecting dielectric heat shield
ARC-10803 874-10074 04
- PETERSON, V. S.**
Electronic high pass filter
LEWIS-11600 874-10083 02
- PETRASEK, D. W.**
Advanced tungsten fiber-reinforced
nickel superalloy
LEWIS-12394 874-10248 04

- PICCIOLO, G. L.**
Improved methods for counting bacteria
in physiological fluids
GSFC-11917 874-10231 05
- POHM, A. V.**
Magnetometer with miniature transducer
and automatic transducer scanning
apparatus
LANGLEY-11617 874-10142 02
- PORTER, F. J., JR.**
Two-phase, passive separator-and-filter
assembly
LANGLEY-10976 874-10133 04
- POWELL, J. A.**
Improved epitaxial process for fabricating
silicon carbide semiconductor devices
LEWIS-12094 874-10017 04
- POWELL, J. D.**
Iodine generator for disinfecting
reclaimed water
MSC-14632 874-10153 05
- POWERS, J. F.**
Pressure application technique for high-
temperature composite fabrication
LANGLEY-11601 874-10141 08
- PRASTHOFFER, W. P.**
Design standards for low-profile flanges
M-FS-22708 874-10033 09
- PRIEBE, D. H. F.**
Electrometer system measures
nanoamps at high voltage
LEWIS-12267 874-10064 01
- PROCH, G. E.**
Low-distortion receiver for bilevel,
baseband PCM waveforms
MSC-14557 874-10025 02

Q

- QUATTRONE, P. D.**
Spacecraft oxygen recovery system
ARC-10868 874-10220 05

R

- RAKOWSKY, E. L.**
Ignition of sounding rocket motors with
hand-pumped air
LANGLEY-11152 874-10202 03
- READ, W. S.**
Straight-line IC removal tool
NPO-13157 874-10281 01
- REDMAN, M. C.**
Prediction of unsteady aerodynamic
loadings caused by trailing-edge
control-surface motions in subsonic
compressible flow
LANGLEY-11175 874-10091 06
- REMBAUM, A.**
Polyelectrolytes with high charge
density
NPO-11918 874-10159 04
- RENZ, D. D.**
Very high voltage latching relay
LEWIS-12265 874-10079 01
- RHEIN, K. A.**
New polymer systems: Chain extension
by dianhydrides
NPO-13046 874-10077 04
- RILEY, T. J.**
High voltage solid-state relay
LEWIS-12096 874-10006 01

- RISCH, E. R.**
Nondestructive testing of railroad wheels and rails by ultrasonics
M-FS-23086 B74-10238 06
- ROBELEN, D. B.**
Optical discriminator system
LANGLEY-11580 B74-10139 03
- ROBERTS, A. S., JR.**
Calorimetric detection of neutral-atom content of ion beam
LANGLEY-11505 B74-10184 03
- ROBSON, R. R.**
Electrometer system measures nano-amps at high voltage
LEWIS-12267 B74-10064 01
- ROFFE, G.**
Numerical program for analysis of three-dimensional supersonic exhaust flow fields (CHAR 3D)
LANGLEY-11596 B74-10236 09
- ROGERS, J. R.**
Cushion module for stowing electronic equipment
ARC-10779 B74-10073 04
- ROSTAFINSKI, W. A.**
Zeros of certain cross products of Bessel functions of fractional order
LEWIS-12221 B74-10012 03
- ROSZHART, T. V.**
Surface roughness measured by optical signatures
ARC-10853 B74-10118 03
- ROWE, E.**
Dually-mode-locked ND: YAG laser
GSFC-11746 B74-10038 03
- ROWE, W. J.**
Thermoelastic analysis of solar cell arrays and their material properties
NPO-13458 B74-10301 03
- ROWE, W. S.**
Prediction of unsteady aerodynamic loadings caused by trailing-edge control-surface motions in subsonic compressible flow
LANGLEY-11175 B74-10091 06
- RUBENS, L. S.**
Directory of aerospace safety specialized information sources
LEWIS-12223 B74-10019 03
- RUBIN, B.**
New tooth enamel from brushite crystals
ERC-10338 B74-10199 05
- RUMMEL, W. D.**
Holographic evaluation of fatigue cracks by a compressive stress (HYSTERESIS) technique
MSC-14555 B74-10156 06
- RUSK, S. J.**
Decimal digit generator for commutated data: A Concept
ARC-10856 B74-10120 01
- RYAN, M. J.**
Fabrication of complex structures or assemblies by hot isostatic pressure (HIP) welding
LEWIS-11490 B74-10124 04
- S**
- SABOL, A. P.**
Flat device for heat concentration or dispersion
LANGLEY-11699 B74-10291 03
- SALAMA, M. A.**
Thermoelastic analysis of solar cell arrays and their material properties
NPO-13458 B74-10301 03
- SALATIELLO, P. P.**
Polymer compositions suitable for use in enriched oxygen atmospheres
MSC-14618 B74-10154 04
- SALVINSKI, R. J.**
Surface roughness measured by optical signatures
ARC-10853 B74-10118 03
- SANDERCOCK, D. M.**
Data summary and computer program for axial-flow pump rotor performance
LEWIS-11920 B74-10127 09
- SANFORT, R. M.**
Depositing spacing layers on magnetic film with liquid phase epitaxy
LANGLEY-11528 B74-10262 01
- SANTARPIA, D.**
Dually-mode-locked ND: YAG laser
GSFC-11746 B74-10038 03
- SATER, B. L.**
High voltage solid-state relay
LEWIS-12096 B74-10006 01
- SAWYER, C. D.**
Improved control for nuclear/thermionic power source: A concept
NPO-13114 B74-10167 03
- SCHERTLER, R. J.**
Vertical copy camera system provides photographs from ERTS-1 imagery
LEWIS-12140 B74-10009 07
- SCHLAGHECK, R. A.**
Generalized curve fit and plotting (GECAP) program
M-FS-22728 B74-10044 09
- SCHMIDT, K. C.**
Improved channel multiplier for radiation-and-particle detectors
NPO-12128 B74-10275 03
- SCHMIDT, L. A.**
Separation dynamics of S-II derivative launch vehicle
M-FS-24325 B74-10151 06
- SCHMIDT, L. F.**
Improved xenon lamp for solar simulators: A concept
NPO-13128 B74-10195 03
- SCHMIDT, R. F.**
Variable-beamwidth antennas
GSFC-11760 B74-10041 02
- SCHNEIDER, W. C.**
New insulation attachment method eliminates compatibility bondline stresses
MSC-12615 B74-10269 07
- SCHOEN, A. H.**
Expandable space frames
ERC-10365 B74-10252 06
- SCHUBERT, F. H.**
Iodine generator for disinfecting reclaimed water
MSC-14632 B74-10153 05
- SCHULE, E. C.**
Polymer compositions suitable for use in enriched oxygen atmospheres
MSC-14618 B74-10154 04
- SCOTT, W. R.**
Reliability data for electronic and electromechanical components: A report
NPO-13153 B74-10280 01
- SERAFINI, T. T.**
Criteria for selecting resin matrices for improved composite strength
LEWIS-12057 B74-10005 04
- SEROVY, G. K.**
Data summary and computer program for axial-flow pump rotor performance
LEWIS-11920 B74-10127 09
- SHARP, G. R.**
Electrometer system measures nano-amps at high voltage
LEWIS-12267 B74-10064 01
- SHAW, C. S.**
Control vane for engine exhaust flow
LANGLEY-11570 B74-10138 06
- SHAW, R. W.**
Depositing spacing layers on magnetic film with liquid phase epitaxy
LANGLEY-11528 B74-10262 01
- SHEN, F. A.**
Computer program for flexible rotor dynamics analysis
LEWIS-12153 B74-10084 09
- SHERWOOD, J. W.**
Toroidal equipment packaging
ARC-10828 B74-10055 03
- SHETH, S.**
Flame resistant elastic elastomeric fiber
MSC-14331 B74-10157 04
- SHIM, I. H.**
Recorder/processor apparatus
GSFC-11553 B74-10042 03
- SHUMKA, A.**
Improved solid-state triode construction
NPO-13064 B74-10107 01
- SHUTE, D. I.**
Reference apparatus for medical ultrasonic transducer
ARC-10753 B74-10197 01
- SIDMAN, K. R.**
Flame resistant elastic elastomeric fiber
MSC-14331 B74-10157 04
- SIGNORELLI, R. A.**
Advanced tungsten fiber-reinforced nickel superalloy
LEWIS-12394 B74-10248 04
- SILVER, R. H.**
Strain gauge sensitivity improved by using a composite beam
NPO-13170 B74-10297 07
- SIMMONDS, M.**
A band clamp with a spring toggle lever
MSC-14736 B74-10240 07
- SIMMONS, R. S.**
Measurement of temperature profiles in hot gases and flames
LEWIS-12055 B74-10060 03
- SLINEY, H. E.**
Plasma-sprayed metal-glass fluoride coatings for lubrication to 1170 K (1650 F)
LEWIS-11930 B74-10016 04
- SMITH, D. L.**
Battery activation system
ARC-10832 B74-10056 03
- SMITH, H. E.**
Closed-circuit-television welding-electrode guidance system
M-FS-23026 B74-10150 02
- SMITH, M.**
High-temperature tensile tester for ceramics
ARC-10822 B74-10244 04
- SMITH, T. H., III**
Radioisotope heater
ARC-10791 B74-10051 03

Economical technique for fragmentation testing
ARC-10792 B74-10052 04

SNOKE, B. A.
Economical technique for fragmentation testing
ARC-10792 B74-10052 04

SOLLO, C.
Battery activation system
ARC-10832 B74-10056 03

SOLOMAN, D. W., JR.
Radio-controlled, sound-operated switch
LANGLEY-11641 B74-10143 03

SPANGLER, S. B.
Computation of aerodynamic interference between lifting surfaces and lift- and cruise-fans
ARC-10833 B74-10113 09
Calculation of aerodynamic characteristics of STOL aircraft
ARC-10882 B74-10221 09

SPEAR, A. J.
Telecommunications systems design techniques handbook
NPO-13245 B74-10284 02

STACEY, W. S.
Radioisotope thermal generator (RTG) power conditioner
LANGLEY-11313 B74-10022 03

STAHLE, C. V., JR.
Dynamic transformation method
M-FS-22848 B74-10076 06

STARNER, E. R.
Reduction of quantization error in measurement of frequency
MSC-14649 B74-10191 02

STEIN, J. A.
Automatic soldering machine
MSC-19401 B74-10193 06

STEINBERG, R.
Method of measuring the thickness of radioactive thin films
LEWIS-11971 B74-10065 03
A high yield neutron target
LEWIS-12058 B74-10066 03

STEINBERGER, A. J.
Radioisotope heater
ARC-10791 B74-10051 03

STELBEN, J. J.
Recorder/processor apparatus
GSFC-11553 B74-10042 03

STEPHENS, D. L.
Closed-circuit-television welding-electrode guidance system
M-FS-23026 B74-10150 02

STEVENS, N. J.
Electrometer system measures nanoamps at high voltage
LEWIS-12267 B74-10064 01
Very high voltage latching relay
LEWIS-12265 B74-10079 01

STEWART, W. C.
Acoustic-optic deflector telescope
M-FS-23107 B74-10293 03

STRANGE, M. G.
Implementation of a self-controlling heater: A concept
GSFC-11752 B74-10241 06

STRINGER, E. J.
Microelectronics packaging technique: A Concept
MSC-19399 B74-10192 01

STROM, T. N.
Improved circumferential shaft seal
LEWIS-11873 B74-10062 07

STUDER, P. A.
Improved magnetic suspension technique
GSFC-11079 B74-10254 03

STURMAN, J. C.
Low cost instrumentation amplifier
LEWIS-12222 B74-10015 01
Electrometer system measures nanoamps at high voltage
LEWIS-12267 B74-10064 01

SULLIVAN, T. L.
Advanced fiber-composite hybrids--A new structural material
LEWIS-12118 B74-10247 04

SURRENCY, W. M.
Automatic marker for photographic film
MSC-14705 B74-10152 03

SUTHERLAND, I. A.
Dynamometer for measuring machining forces in two perpendicular directions
M-FS-22899 B74-10148 07

SUTTON, J. F.
Synchronized frequency transposer
GSFC-11763 B74-10256 01

T

TAGNELIA, C. R.
Digital second-order phase-locked loop
NPO-11905 B74-10274 01

TAMEKUNI, M.
Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)
LANGLEY-11199 B74-10203 09
Computer program for stresses and buckling of heated composite-stiffened panels and other structures (BUCLASP 3)
LANGLEY-11533 B74-10204 09

TANZILLI, R. A.
Process for fabrication of stabilized aluminum phosphate fibers
LANGLEY-11526 B74-10185 08

TAPIA, M. A.
Generalized current distribution rule
LANGLEY-11565 B74-10093 02

TAUSWORTHE, R. C.
Third-order phase-locked loop receiver
NPO-11941 B74-10104 02

TAYLOR, R. A.
Closed-circuit-television welding-electrode guidance system
M-FS-23026 B74-10150 02

TEXLER, R. E.
Vertical copy camera system provides photographs from erts-1 imagery
LEWIS-12140 B74-10009 07

THOMPSON, G.
In vivo measurement of mechanical impedance of bone
ARC-10857 B74-10245 05

TIMOR, U.
Interplex modulation and a suppressed-carrier tracking loop for coherent communications systems
NPO-11572 B74-10209 01

TONEY, E. W.
Thrust vector control for V/STOL aircraft
ARC-10788 B74-10049 06

TOPITS, A., JR.
Apparatus for heat treating plastic belts
NPO-13205 B74-10299 02

TOTH, L. R.
Full-flow fluid filter
NPO-13118 B74-10277 02

TRIPP, L. L.
Computer program for stresses and buckling of heated composite-stiffened panels and other structures (BUCLASP 3)
LANGLEY-11533 B74-10204 09

TRIVISONNO, R. J.
Computer program for calculating critical speeds of rotating shafts
LEWIS-11910 B74-10128 09

TROUTMAN, S. J., JR.
Programmed-pressure air supply for positive-pressure breathing system
ARC-10845 B74-10075 05

TRUMPLIS, B. D.
Telecommunications systems design techniques handbook
NPO-13245 B74-10284 02

TSUDA, G. I.
High-efficiency multifrequency feed
GSFC-11909 B74-10288 02

TYCZ, M.
Optical communication channel simulator system
GSFC-11877 B74-10258 01

V

VAN ATTA, L. C.
Improved circularly polarized antenna
ERC-10214 B74-10250 02

VARY, A.
Guidebook of nondestructive evaluation techniques for materials and structures
LEWIS-12272 B74-10122 04

VEILLETTE, L.
Magnetic bearings with combined radial and axial control
GSFC-11551 B74-10131 06

VINSON, W. D., JR.
Separation dynamics of S-II derivative launch vehicle
M-FS-24325 B74-10151 06

VISWANATHAN, A. V.
Computer program for buckling loads of orthotropic laminated stiffened panels subjected to biaxial in-place loads (BUCLASP 2)
LANGLEY-11199 B74-10203 09
Computer program for stresses and buckling of heated composite-stiffened panels and other structures (BUCLASP 3)
LANGLEY-11533 B74-10204 09

W

WAKEFIELD, M. E.
Explosive welding technique for joining aluminum and steel tubes
MSC-14721 B74-10272 08

WALL, W. A.
Closed-circuit-television welding-electrode guidance system
M-FS-23026 B74-10150 02

WATERS, W. J.
High strength nickel base alloy, WAZ-16, for applications up to 2200 F
LEWIS-12270 B74-10082 04

WEISENBACH, P.
A high yield neutron target
LEWIS-12058 B74-10066 03

WETLI, R. G.**WETLI, R. G.**

Electrometer system measures
nanoamps at high voltage
LEWIS-12267 B74-10064 01

WIBERG, R. E.

Combustion products generating and
metering device
GSFC-11095 B74-10036 04

WIEBE, E. R.

Improved thermal isolation for
superconducting magnet systems
NPO-11875 B74-10158 02

WILKINS, J. R.

Domestic wash water reclamation
LANGLEY-11606 B74-10177 04

Automated single-slide staining system
LANGLEY-11649 B74-10188 05

WILL, H. A.

Casting copper to tungsten for
high-power arc lamp cathodes
LEWIS-12169 B74-10011 04

Improved epitaxial process for fabricating
silicon carbide semiconductor devices
LEWIS-12094 B74-10017 04

WILLIAMS, B. A.

Thermistor holder for skin-temperature
measurements
ARC-10855 B74-10119 05

Liquid-cooled liner for helmets
ARC-10534 B74-10249 05

WILSON, J. C.

Control vane for engine exhaust flow
LANGLEY-11570 B74-10138 06

WILSON, L. R.

Wide deviation phase modulator
LANGLEY-11607 B74-10178 02

WINKELSTEIN, R. A.

Minicomputer-controlled frequency gen-
erator
NPO-11962 B74-10163 02

WINTHER, B. A.

Prediction of unsteady aerodynamic
loadings caused by trailing-edge
control-surface motions in subsonic
compressible flow
LANGLEY-11175 B74-10091 06

WITZ, S. W.

Automated monitoring of recovered
water quality
LANGLEY-11203 B74-10029 05

WOO, R. T.

Method for remotely sensing turbulence
of planetary atmospheres
NPO-13154 B74-10168 03

Low-loss, circularly-polarized dichroic
plate
NPO-13171 B74-10283 01

WOODBURGY, R. C.

Laser-scanning techniques for rapid
ballistics identification
NPO-11861 B74-10102 03

WUNSCH, H. P.

Closed-circuit-television welding-elec-
trode guidance system
M-FS-23026 B74-10150 02

Y**YAMADA, H. Y.**

Measurement of temperature profiles in
hot gases and flames
LEWIS-12055 B74-10060 03

YANG, L. C.

Laser-actuated mechanical device
NPO-13105 B74-10166 03
Laser system to detonate explosive
devices
NPO-11743 B74-10194 03

YASS, K.

A low cost "Air Mass 2" solar
simulator
LEWIS-12266 B74-10086 02

YASUI, R. K.

Facility for testing solar cells
NPO-11761 B74-10099 02
Thermoelastic analysis of solar cell arrays
and their material properties
NPO-13458 B74-10301 03

YEN, S. P. S.

Polyelectrolytes with high charge
density
NPO-11918 B74-10159 04

YINON, J.

Negative ion spectrometry for detecting
nitrated explosives
NPO-13082 B74-10276 02

YOUNG, D. R.

In vivo measurement of mechanical
impedance of bone
ARC-10857 B74-10245 05

YOUNG, S. G.

A new nickel-base wrought superalloy
for applications up to 1033 K (1400 F)
LEWIS-11827 B74-10002 04

New nickel-base wrought superalloy with
applications up to 1253 K (1800 F)
LEWIS-11828 B74-10003 04

Process to restore obliterated serial
numbers on metal surfaces
LEWIS-12085 B74-10020 07

YOUNGBLUTH, O., JR.

Color-coded area sensitivity maps of
photomultipliers
LANGLEY-10320 B74-10259 01

Z**ZIEGLER, H.**

Investigation of exit-velocity stratification
effects on jets in a crossflow (STRJET)
LANGLEY-11581 B74-10207 09

ZORUMSKI, W. E.

Noise suppressor
LANGLEY-11141 B74-10261 03

ORIGINATING CENTER/TECH BRIEF NUMBER INDEX

Index to NASA Tech Briefs

Issue 15

Originating Center/ Tech Brief Number Index

The left hand column identifies the originating Center number; to the right of each originating Center number is the Tech Brief number, e.g., B74-10109, followed by a two-digit number, e.g., 01, which identifies the subject category containing the entire citation.

ARC-10090 B74-10109 02
ARC-10322 B74-10071 03
ARC-10445 B74-10110 01
ARC-10466 B74-10170 02
ARC-10512 B74-10045 06
ARC-10534 B74-10249 05
ARC-10551 B74-10111 04
ARC-10596 B74-10112 01
ARC-10729 B74-10196 01
ARC-10753 B74-10197 01
ARC-10754 B74-10046 06
ARC-10755 B74-10072 03
ARC-10762 B74-10047 01
ARC-10779 B74-10073 04
ARC-10787 B74-10048 06
ARC-10788 B74-10049 06
ARC-10789 B74-10050 02
ARC-10791 B74-10051 03
ARC-10792 B74-10052 04
ARC-10797 B74-10053 04
ARC-10802 B74-10243 03
ARC-10803 B74-10074 04
ARC-10806 B74-10171 02
ARC-10816 B74-10172 05
ARC-10822 B74-10244 04
ARC-10827 B74-10198 02
ARC-10828 B74-10055 03
ARC-10829 B74-10054 03
ARC-10832 B74-10056 03
ARC-10833 B74-10113 09
ARC-10837 B74-10057 04
ARC-10838 B74-10114 08
ARC-10839 B74-10058 06
ARC-10840 B74-10059 06
ARC-10842 B74-10115 02
ARC-10844 B74-10116 03
ARC-10845 B74-10075 05
ARC-10847 B74-10216 03
ARC-10848 B74-10173 03
ARC-10850 B74-10117 03
ARC-10852 B74-10217 03
ARC-10853 B74-10118 03
ARC-10854 B74-10174 06
ARC-10855 B74-10119 05
ARC-10856 B74-10120 01

ARC-10857 B74-10245 05
ARC-10860 B74-10218 04
ARC-10861 B74-10219 04
ARC-10868 B74-10220 05
ARC-10881 B74-10175 04
ARC-10882 B74-10221 09
ARC-10889 B74-10246 03
ARC-10919 B74-10222 04

ERC-10015 B74-10253 01
ERC-10214 B74-10250 02
ERC-10267 B74-10285 02
ERC-10285 B74-10251 01
ERC-10338 B74-10199 05
ERC-10365 B74-10252 06

GSFC-10087 B74-10024 02
GSFC-10975 B74-10021 02
GSFC-10990 B74-10035 02
GSFC-11079 B74-10254 03
GSFC-11095 B74-10036 04
GSFC-11182 B74-10088 02
GSFC-11425 B74-10026 01
GSFC-11446 B74-10255 01
GSFC-11492 B74-10229 03
GSFC-11551 B74-10131 06
GSFC-11553 B74-10042 03
GSFC-11616 B74-10037 09
GSFC-11627 B74-10089 01
GSFC-11694 B74-10181 03
GSFC-11746 B74-10038 03
GSFC-11752 B74-10241 06
GSFC-11760 B74-10041 02
GSFC-11763 B74-10256 01
GSFC-11782 B74-10182 03
GSFC-11829 B74-10230 03
GSFC-11849 B74-10242 01
GSFC-11862 B74-10257 01
GSFC-11877 B74-10258 01
GSFC-11889 B74-10286 01
GSFC-11892 B74-10287 01
GSFC-11909 B74-10288 02
GSFC-11917 B74-10231 05

HQ-10732 B74-10232 03
HQ-10791 B74-10200 03

KSC-10833 B74-10183 05
KSC-10850 B74-10039 07
KSC-10855 B74-10028 06

LANGLEY-10320 B74-10259 01
LANGLEY-10789 B74-10289 05
LANGLEY-10800 B74-10201 04
LANGLEY-10850 B74-10132 04
LANGLEY-10976 B74-10133 04
LANGLEY-11045 B74-10134 03
LANGLEY-11112 B74-10260 01
LANGLEY-11141 B74-10261 03
LANGLEY-11152 B74-10202 03
LANGLEY-11174 B74-10090 01

LANGLEY-11175 B74-10091 06
LANGLEY-11199 B74-10203 09
LANGLEY-11203 B74-10029 05
LANGLEY-11209 B74-10205 09
LANGLEY-11232 B74-10092 06
LANGLEY-11288 B74-10027 04
LANGLEY-11313 B74-10022 03
LANGLEY-11325 B74-10135 06
LANGLEY-11338 B74-10136 03
LANGLEY-11379 B74-10137 02
LANGLEY-11387 B74-10176 02
LANGLEY-11443 B74-10030 06
LANGLEY-11505 B74-10184 03
LANGLEY-11526 B74-10185 08
LANGLEY-11528 B74-10262 01
LANGLEY-11533 B74-10204 09
LANGLEY-11535 B74-10206 09
LANGLEY-11536 B74-10234 01
LANGLEY-11565 B74-10093 02
LANGLEY-11569 B74-10186 09
LANGLEY-11570 B74-10138 06
LANGLEY-11579 B74-10140 05
LANGLEY-11580 B74-10139 03
LANGLEY-11581 B74-10207 09
LANGLEY-11588 B74-10235 06
LANGLEY-11589 B74-10263 08
LANGLEY-11595 B74-10140 05
LANGLEY-11596 B74-10236 09
LANGLEY-11598 B74-10234 01
LANGLEY-11601 B74-10141 08
LANGLEY-11604 B74-10031 07
LANGLEY-11606 B74-10177 04
LANGLEY-11607 B74-10178 02
LANGLEY-11612 B74-10094 03
LANGLEY-11617 B74-10142 02
LANGLEY-11628 B74-10264 04
LANGLEY-11641 B74-10143 03
LANGLEY-11643 B74-10179 06
LANGLEY-11645 B74-10187 03
LANGLEY-11648 B74-10180 01
LANGLEY-11649 B74-10188 05
LANGLEY-11658 B74-10290 01
LANGLEY-11675 B74-10208 04
LANGLEY-11699 B74-10291 03

LEWIS-11087 B74-10013 06
LEWIS-11490 B74-10124 04
LEWIS-11600 B74-10083 02
LEWIS-11644 B74-10080 05
LEWIS-11690 B74-10001 06
LEWIS-11827 B74-10002 04
LEWIS-11828 B74-10003 04
LEWIS-11866 B74-10063 03
LEWIS-11873 B74-10062 07
LEWIS-11910 B74-10128 09
LEWIS-11920 B74-10127 09
LEWIS-11930 B74-10016 04
LEWIS-11964 B74-10004 02
LEWIS-11971 B74-10065 03
LEWIS-12055 B74-10060 03
LEWIS-12057 B74-10005 04
LEWIS-12058 B74-10066 03
LEWIS-12085 B74-10020 07
LEWIS-12087 B74-10018 08
LEWIS-12089 B74-10081 03

ORIGINATING CENTER/TECH BRIEF NUMBER INDEX

LEWIS-12094	874-10017 04	MSC-14632	874-10153 05
LEWIS-12096	874-10006 01	MSC-14649	874-10191 02
LEWIS-12118	874-10247 04	MSC-14705	874-10152 03
LEWIS-12129	874-10130 09	MSC-14721	874-10272 08
LEWIS-12138	874-10007 04	MSC-14736	874-10240 07
LEWIS-12139	874-10008 07	MSC-19335	874-10023 07
LEWIS-12140	874-10009 07	MSC-19372	874-10273 06
LEWIS-12153	874-10084 09	MSC-19399	874-10192 01
LEWIS-12159	874-10121 04	MSC-19401	874-10193 06
LEWIS-12168	874-10010 07	MSC-19442	874-10224 03
LEWIS-12169	874-10011 04		
LEWIS-12178	874-10129 09		
LEWIS-12184	874-10125 08	NPO-11461	874-10097 02
LEWIS-12186	874-10067 09	NPO-11515	874-10098 02
LEWIS-12204	874-10014 07	NPO-11572	874-10209 01
LEWIS-12206	874-10123 09	NPO-11609	874-10210 05
LEWIS-12218	874-10068 01	NPO-11743	874-10194 03
LEWIS-12221	874-10012 03	NPO-11761	874-10099 02
LEWIS-12222	874-10015 01	NPO-11775	874-10100 01
LEWIS-12223	874-10019 03	NPO-11856	874-10101 03
LEWIS-12237	874-10085 04	NPO-11861	874-10102 03
LEWIS-12238	874-10078 02	NPO-11875	874-10158 02
LEWIS-12264	874-10061 06	NPO-11887	874-10103 05
LEWIS-12265	874-10079 01	NPO-11895	874-10211 03
LEWIS-12266	874-10086 02	NPO-11905	874-10274 01
LEWIS-12267	874-10064 01	NPO-11918	874-10159 04
LEWIS-12268	874-10069 01	NPO-11924	874-10160 01
LEWIS-12270	874-10082 04	NPO-11941	874-10104 02
LEWIS-12272	874-10122 04	NPO-11942	874-10161 03
LEWIS-12327	874-10087 06	NPO-11948	874-10162 02
LEWIS-12331	874-10126 08	NPO-11951	874-10105 07
LEWIS-12332	874-10227 06	NPO-11962	874-10163 02
LEWIS-12346	874-10228 06	NPO-12128	874-10275 03
LEWIS-12394	874-10248 04	NPO-13044	874-10106 02
		NPO-13046	874-10077 04
		NPO-13055	874-10212 03
M-FS-19234	874-10265 04	NPO-13059	874-10164 07
M-FS-21406	874-10040 09	NPO-13063	874-10213 05
M-FS-22039	874-10144 06	NPO-13064	874-10107 01
M-FS-22223	874-10032 04	NPO-13067	874-10165 02
M-FS-22401	874-10225 09	NPO-13082	874-10276 02
M-FS-22536	874-10043 09	NPO-13105	874-10166 03
M-FS-22697	874-10145 09	NPO-13112	874-10108 03
M-FS-22708	874-10033 09	NPO-13114	874-10167 03
M-FS-22728	874-10044 09	NPO-13118	874-10277 02
M-FS-22807	874-10146 06	NPO-13128	874-10195 03
M-FS-22848	874-10076 06	NPO-13136	874-10278 05
M-FS-22873	874-10189 09	NPO-13138	874-10295 01
M-FS-22887	874-10147 02	NPO-13139	874-10296 02
M-FS-22899	874-10148 07	NPO-13143	874-10279 09
M-FS-22910	874-10190 09	NPO-13148	874-10214 08
M-FS-22935	874-10034 09	NPO-13153	874-10280 01
M-FS-22943	874-10149 03	NPO-13154	874-10168 03
M-FS-23026	874-10150 02	NPO-13157	874-10281 01
M-FS-23047	874-10237 07	NPO-13160	874-10282 01
M-FS-23057	874-10266 07	NPO-13170	874-10297 07
M-FS-23059	874-10267 06	NPO-13171	874-10283 01
M-FS-23062	874-10292 07	NPO-13201	874-10298 07
M-FS-23074	874-10226 05	NPO-13205	874-10299 02
M-FS-23086	874-10238 06	NPO-13217	874-10300 02
M-FS-23090	874-10268 04	NPO-13245	874-10284 02
M-FS-23107	874-10293 03	NPO-13368	874-10215 09
M-FS-23133	874-10294 01	NPO-13458	874-10301 03
M-FS-24325	874-10151 06	NPO-13480	874-10169 09
MSC-12615	874-10269 07	XAC-05632	874-10070 06
MSC-12616	874-10223 03		
MSC-12631	874-10270 08		
MSC-12661	874-10239 01	XLA-11028	874-10233 06
MSC-13972	874-10271 03		
MSC-14187	874-10095 04		
MSC-14331	874-10157 04		
MSC-14435	874-10096 04		
MSC-14555	874-10156 06		
MSC-14557	874-10025 02		
MSC-14615	874-10155 05		
MSC-14618	874-10154 04		

TECH BRIEF/ORIGINATING CENTER NUMBER INDEX

Index to NASA Tech Briefs

Issue 15

Tech Brief/Originating Center Number Index

The left hand column identifies the Tech Brief number, e.g., B74-10001, followed by a two-digit number, e.g., 06, which identifies the subject category containing the entire citation. Following the subject category number is the originating Center number.

B74-10001 06	LEWIS-11690	B74-10045 06	ARC-10512	B74-10110 01	ARC-10445
B74-10002 04	LEWIS-11827	B74-10046 06	ARC-10754	B74-10111 04	ARC-10551
B74-10003 04	LEWIS-11828	B74-10047 01	ARC-10762	B74-10112 01	ARC-10596
B74-10004 02	LEWIS-11964	B74-10048 06	ARC-10787	B74-10113 09	ARC-10833
B74-10005 04	LEWIS-12057	B74-10049 06	ARC-10788	B74-10114 08	ARC-10838
B74-10006 01	LEWIS-12096	B74-10050 02	ARC-10789	B74-10115 02	ARC-10842
B74-10007 04	LEWIS-12138	B74-10051 03	ARC-10791	B74-10116 03	ARC-10844
B74-10008 07	LEWIS-12139	B74-10052 04	ARC-10792	B74-10117 03	ARC-10850
B74-10009 07	LEWIS-12140	B74-10053 04	ARC-10797	B74-10118 03	ARC-10853
B74-10010 07	LEWIS-12168	B74-10054 03	ARC-10829	B74-10119 05	ARC-10855
B74-10011 04	LEWIS-12169	B74-10055 03	ARC-10828	B74-10120 01	ARC-10856
B74-10012 03	LEWIS-12221	B74-10056 03	ARC-10832	B74-10121 04	LEWIS-12159
B74-10013 06	LEWIS-11087	B74-10057 04	ARC-10837	B74-10122 04	LEWIS-12272
B74-10014 07	LEWIS-12204	B74-10058 06	ARC-10839	B74-10123 09	LEWIS-12206
B74-10015 01	LEWIS-12222	B74-10059 06	ARC-10840	B74-10124 04	LEWIS-11490
B74-10016 04	LEWIS-11930	B74-10060 03	LEWIS-12055	B74-10125 08	LEWIS-12184
B74-10017 04	LEWIS-12094	B74-10061 06	LEWIS-12264	B74-10126 08	LEWIS-12331
B74-10018 08	LEWIS-12087	B74-10062 07	LEWIS-11873	B74-10127 09	LEWIS-11920
B74-10019 03	LEWIS-12223	B74-10063 03	LEWIS-11866	B74-10128 09	LEWIS-11910
B74-10020 07	LEWIS-12085	B74-10064 01	LEWIS-12267	B74-10129 09	LEWIS-12178
B74-10021 02	GSFC-10975	B74-10065 03	LEWIS-11971	B74-10130 09	LEWIS-12129
B74-10022 03	LANGLEY-11313	B74-10066 03	LEWIS-12058	B74-10131 06	GSFC-11551
B74-10023 07	MSC-19335	B74-10067 09	LEWIS-12186	B74-10132 04	LANGLEY-10850
B74-10024 02	GSFC-10087	B74-10068 01	LEWIS-12218	B74-10133 04	LANGLEY-10976
B74-10025 02	MSC-14557	B74-10069 01	LEWIS-12268	B74-10134 03	LANGLEY-11045
B74-10026 01	GSFC-11425	B74-10070 06	XAC-05632	B74-10135 06	LANGLEY-11325
B74-10027 04	LANGLEY-11288	B74-10071 03	ARC-10322	B74-10136 03	LANGLEY-11338
B74-10028 06	KSC-10855	B74-10072 03	ARC-10755	B74-10137 02	LANGLEY-11379
B74-10029 05	LANGLEY-11203	B74-10073 04	ARC-10779	B74-10138 06	LANGLEY-11570
B74-10030 06	LANGLEY-11443	B74-10074 04	ARC-10803	B74-10139 03	LANGLEY-11580
B74-10031 07	LANGLEY-11604	B74-10075 05	ARC-10845	B74-10140 05	LANGLEY-11579
B74-10032 04	M-FS-22223	B74-10076 06	M-FS-22848		LANGLEY-11595
B74-10033 09	M-FS-22708	B74-10077 04	NPO-13046	B74-10141 08	LANGLEY-11601
B74-10034 09	M-FS-22935	B74-10078 02	LEWIS-12238	B74-10142 02	LANGLEY-11617
B74-10035 02	GSFC-10990	B74-10079 01	LEWIS-12265	B74-10143 03	LANGLEY-11641
B74-10036 04	GSFC-11095	B74-10080 05	LEWIS-11644	B74-10144 06	M-FS-22039
B74-10037 09	GSFC-11616	B74-10081 03	LEWIS-12089	B74-10145 09	M-FS-22697
B74-10038 03	GSFC-11746	B74-10082 04	LEWIS-12270	B74-10146 06	M-FS-22807
B74-10039 07	KSC-10850	B74-10083 02	LEWIS-11600	B74-10147 02	M-FS-22887
B74-10040 09	M-FS-21406	B74-10084 09	LEWIS-12153	B74-10148 07	M-FS-22899
B74-10041 02	GSFC-11760	B74-10085 04	LEWIS-12237	B74-10149 03	M-FS-22943
B74-10042 03	GSFC-11553	B74-10086 02	LEWIS-12266	B74-10150 02	M-FS-23026
B74-10043 09	M-FS-22536	B74-10087 06	LEWIS-12327	B74-10151 06	M-FS-24325
B74-10044 09	M-FS-22728	B74-10088 02	GSFC-11182	B74-10152 03	MSC-14705
		B74-10089 01	GSFC-11627	B74-10153 05	MSC-14632
		B74-10090 01	LANGLEY-11174	B74-10154 04	MSC-14618
		B74-10091 06	LANGLEY-11175	B74-10155 05	MSC-14615
		B74-10092 06	LANGLEY-11232	B74-10156 06	MSC-14555
		B74-10093 02	LANGLEY-11565	B74-10157 04	MSC-14331
		B74-10094 03	LANGLEY-11612	B74-10158 02	NPO-11875
		B74-10095 04	MSC-14187	B74-10159 04	NPO-11918
		B74-10096 04	MSC-14435	B74-10160 01	NPO-11924
		B74-10097 02	NPO-11461	B74-10161 03	NPO-11942
		B74-10098 02	NPO-11515	B74-10162 02	NPO-11948
		B74-10099 02	NPO-11761	B74-10163 02	NPO-11962
		B74-10100 01	NPO-11775	B74-10164 07	NPO-13059
		B74-10101 03	NPO-11856	B74-10165 02	NPO-13067
		B74-10102 03	NPO-11861	B74-10166 03	NPO-13105
		B74-10103 05	NPO-11887	B74-10167 03	NPO-13114
		B74-10104 02	NPO-11941	B74-10168 03	NPO-13154
		B74-10105 07	NPO-11951	B74-10169 09	NPO-13480
		B74-10106 02	NPO-13044	B74-10170 02	ARC-10466
		B74-10107 01	NPO-13064	B74-10171 02	ARC-10806
		B74-10108 03	NPO-13112	B74-10172 05	ARC-10816
		B74-10109 02	ARC-10090	B74-10173 03	ARC-10848

TECH BRIEF/ ORIGINATING CENTER NUMBER INDEX

B74-10174 06	ARC-10854	B74-10250 02	ERC-10214
B74-10175 04	ARC-10881	B74-10251 01	ERC-10285
B74-10176 02	LANGLEY-11387	B74-10252 06	ERC-10365
B74-10177 04	LANGLEY-11606	B74-10253 01	ERC-10015
B74-10178 02	LANGLEY-11607	B74-10254 03	GSFC-11079
B74-10179 06	LANGLEY-11643	B74-10255 01	GSFC-11446
B74-10180 01	LANGLEY-11648	B74-10256 01	GSFC-11763
B74-10181 03	GSFC-11694	B74-10257 01	GSFC-11862
B74-10182 03	GSFC-11782	B74-10258 01	GSFC-11877
B74-10183 05	KSC-10833	B74-10259 01	LANGLEY-10320
B74-10184 03	LANGLEY-11505	B74-10260 01	LANGLEY-11112
B74-10185 08	LANGLEY-11526	B74-10261 03	LANGLEY-11141
B74-10186 09	LANGLEY-11569	B74-10262 01	LANGLEY-11528
B74-10187 03	LANGLEY-11645	B74-10263 08	LANGLEY-11589
B74-10188 05	LANGLEY-11649	B74-10264 04	LANGLEY-11628
B74-10189 09	M-FS-22873	B74-10265 04	M-FS-19234
B74-10190 09	M-FS-22910	B74-10266 07	M-FS-23057
B74-10191 02	MSC-14649	B74-10267 06	M-FS-23059
B74-10192 01	MSC-19399	B74-10268 04	M-FS-23090
B74-10193 06	MSC-19401	B74-10269 07	MSC-12615
B74-10194 03	NPO-11743	B74-10270 08	MSC-12631
B74-10195 03	NPO-13128	B74-10271 03	MSC-13972
B74-10196 01	ARC-10729	B74-10272 08	MSC-14721
B74-10197 01	ARC-10753	B74-10273 06	MSC-19372
B74-10198 02	ARC-10827	B74-10274 01	NPO-11905
B74-10199 05	ERC-10338	B74-10275 03	NPO-12128
B74-10200 03	HQ-10791	B74-10276 02	NPO-13082
B74-10201 04	LANGLEY-10800	B74-10277 02	NPO-13118
B74-10202 03	LANGLEY-11152	B74-10278 05	NPO-13136
B74-10203 09	LANGLEY-11199	B74-10279 09	NPO-13143
B74-10204 09	LANGLEY-11533	B74-10280 01	NPO-13153
B74-10205 09	LANGLEY-11209	B74-10281 01	NPO-13157
B74-10206 09	LANGLEY-11535	B74-10282 01	NPO-13160
B74-10207 09	LANGLEY-11581	B74-10283 01	NPO-13171
B74-10208 04	LANGLEY-11675	B74-10284 02	NPO-13245
B74-10209 01	NPO-11572	B74-10285 02	ERC-10267
B74-10210 05	NPO-11609	B74-10286 01	GSFC-11889
B74-10211 03	NPO-11895	B74-10287 01	GSFC-11892
B74-10212 03	NPO-13055	B74-10288 02	GSFC-11909
B74-10213 05	NPO-13063	B74-10289 05	LANGLEY-10789
B74-10214 08	NPO-13148	B74-10290 01	LANGLEY-11658
B74-10215 09	NPO-13368	B74-10291 03	LANGLEY-11699
B74-10216 03	ARC-10847	B74-10292 07	M-FS-23062
B74-10217 03	ARC-10852	B74-10293 03	M-FS-23107
B74-10218 04	ARC-10860	B74-10294 01	M-FS-23133
B74-10219 04	ARC-10861	B74-10295 01	NPO-13138
B74-10220 05	ARC-10868	B74-10296 02	NPO-13139
B74-10221 09	ARC-10882	B74-10297 07	NPO-13170
B74-10222 04	ARC-10919	B74-10298 07	NPO-13201
B74-10223 03	MSC-12616	B74-10299 02	NPO-13205
B74-10224 03	MSC-19442	B74-10300 02	NPO-13217
B74-10225 09	M-FS-22401	B74-10301 03	NPO-13458
B74-10226 05	M-FS-23074		
B74-10227 06	LEWIS-12332		
B74-10228 06	LEWIS-12346		
B74-10229 03	GSFC-11492		
B74-10230 03	GSFC-11829		
B74-10231 05	GSFC-11917		
B74-10232 03	HQ-10732		
B74-10233 06	XLA-11028		
B74-10234 01	LANGLEY-11536		
	LANGLEY-11598		
B74-10235 06	LANGLEY-11588		
B74-10236 09	LANGLEY-11596		
B74-10237 07	M-FS-23047		
B74-10238 06	M-FS-23086		
B74-10239 01	MSC-12661		
B74-10240 07	MSC-14736		
B74-10241 06	GSFC-11752		
B74-10242 01	GSFC-11849		
B74-10243 03	ARC-10802		
B74-10244 04	ARC-10822		
B74-10245 05	ARC-10857		
B74-10246 03	ARC-10889		
B74-10247 04	LEWIS-12118		
B74-10248 04	LEWIS-12394		
B74-10249 05	ARC-10534		



POSTMASTER: If Undeliverable (Section 158
Postal Manual) Do Not Return

"The aeronautical and space activities of the United States shall be conducted so as to contribute . . . to the expansion of human knowledge of phenomena in the atmosphere and space. The Administration shall provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof."

— NATIONAL AERONAUTICS AND SPACE ACT OF 1958

NASA TECHNOLOGY UTILIZATION PUBLICATIONS

These describe science or technology derived from NASA's activities that may be of particular interest in commercial and other non-aerospace applications. Publications include:

TECH BRIEFS: Single-page descriptions of individual innovations, devices, methods, or concepts.

TECHNOLOGY SURVEYS: Selected surveys of NASA contributions to entire areas of technology.

OTHER TU PUBLICATIONS: These include handbooks, reports, conference proceedings, special studies, and selected bibliographies.

Technology Utilization publications are part of NASA's formal series of scientific and technical publications. Others include Technical Reports, Technical Notes, Technical Memorandums, Contractor Reports, Technical Translations, and Special Publications.

Details on their availability may be obtained from:

Details on the availability of these publications may be obtained from:

National Aeronautics and
Space Administration
Code KT
Washington, D.C. 20546

National Aeronautics and
Space Administration
Code KS
Washington, D.C. 20546

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Washington, D.C. 20546